MAR 20 1944

PAPER TRADE JOURNAL

MARCH 16, 1944

Established 1886

March of Victory

"Thunder on! Stride on, Democracy . . .
I hear the jubilant shouts of millions
of men. I hear Liberty!"

WHITMAN

Daily now, results on the greatest battle line in all history—many thousands of miles long—show the indomitable will and unconquerable courage of our gallant men and women in uniform.

For speedy Victory, it cannot be emphasized too strongly, the same irrepressible spirit must be evidenced on the home front. High morale and unflagging effort are the most important contributions we can make to back our millions under arms.

GOTTESMAN & COMPANY

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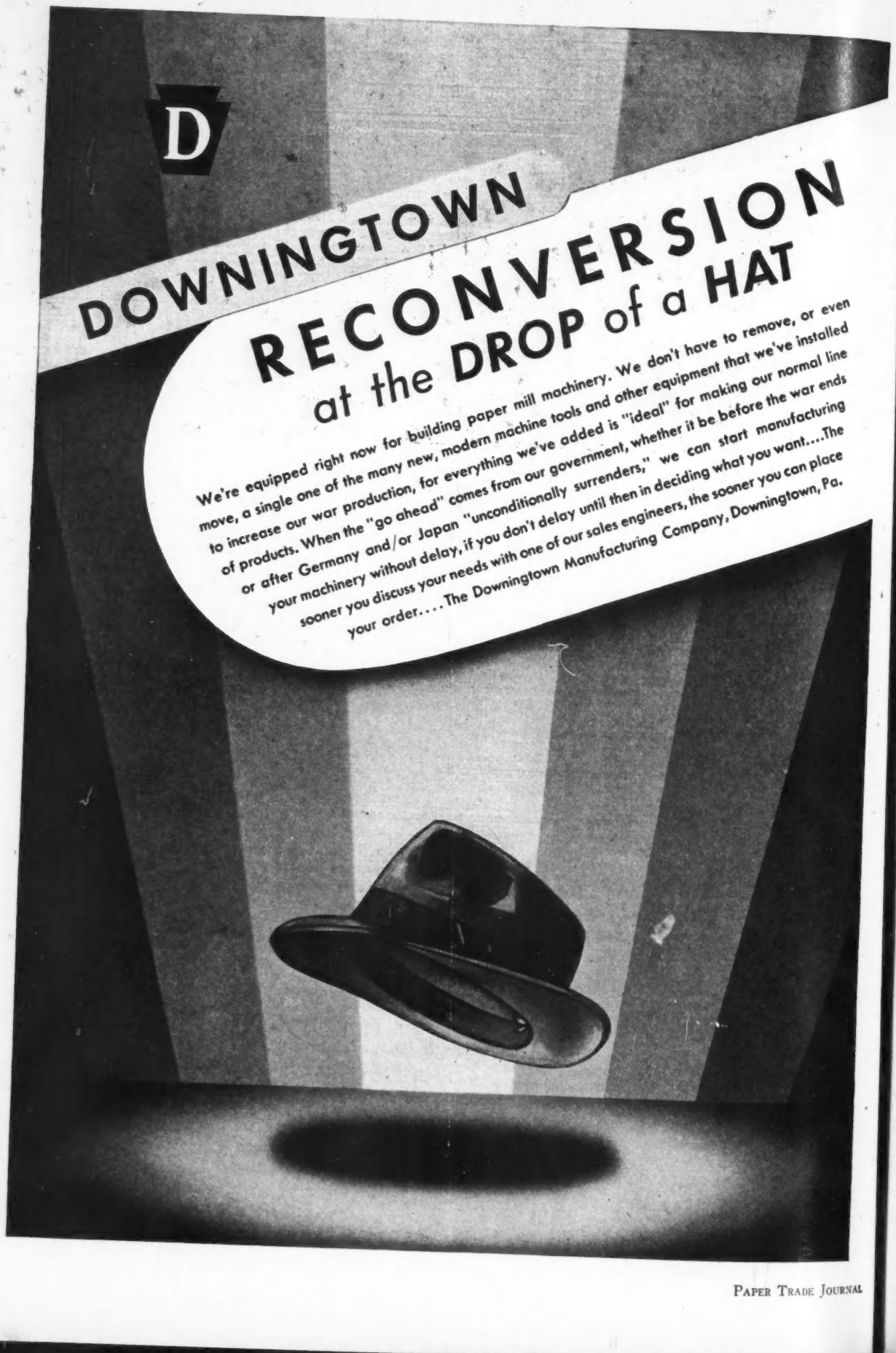
New York **Stockholm**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RECONVERSION
at the DROP of a HAT
We're equipped right now for building paper mill machinery. We don't have to remove, or even move, a single one of the many new, modern machine tools and other equipment that we've installed to increase our war production, for everything we've added is "ideal" for making our normal line of products. When the "go ahead" comes from our government, whether it be before the war ends or after Germany and/or Japan "unconditionally surrenders," we can start manufacturing your machinery without delay, if you don't delay until then in deciding what you want....The sooner you discuss your needs with one of our sales engineers, the sooner you can place your order.... The Downingtown Manufacturing Company, Downingtown, Pa.

PAPER TRADE JOURNAL

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Facts You Should Know about Greases

Are you familiar with the composition of lubricating greases? . . . . . Do you know the different grease types . . . their virtues . . . their weaknesses? . . . . . Are you informed about proper selection and correct application?

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PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.

Vol. 118, No. 11 Thursday, March 16, 1944 Price Ten Cents

Plan to Build $10,000,000 Kraft Pulp Mill

Marathon Mill of Canada, Ltd. Will Sponsor Erection of New Mill And Town On Lake Superior Near Peninsula, Ont. — Paper Securities Reach New Highs—Plants To Make Alcohol From Wood.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., March 13, 1944—Northwestern Ontario is to have an entirely new town, built around a new $10,000,000 bleached kraft pulp mill, according to an announcement this week by Niles N. Anderson, vice-president of Marathon Mill of Canada Ltd., the sponsors.

The new town will be situated on Lake Superior, near Peninsula, Ont. and will have a dock 1,300 feet long by 450 feet wide, as well as a modern hospital, post office, bank, stores, dry cleaning and laundry plants, theatre and recreational facilities, a hotel and modern homes. The Canadian Pacific Railway will build a spur line into the new town and there will be access also to the Trans-Canada highway.

The controller of construction has given approval to proceed with the project and work will commence immediately, according to Mr. Anderson, and when completed will provide permanent employment for 1,500 men in mill and timber operations.

"The project will undoubtedly provide rehabilitation for men returning from overseas," Mr. Anderson stated. He estimated that approximately 600 men will be employed this year.

The dock, on which the mill will be built, will provide storage for 80,000 tons of coal. The mill and its auxiliaries will cost $8,500,000 and the townsite $1,500,000. Several hundred thousand tons of freight will be handled annually, Mr. Anderson stated. It is planned that output will be exported to the United States for conversion into essential wartime products if the mill is completed before the war is over. The annual payroll will amount to $2,000,000, the spokesman said, and claimed that the purchases of equipment and material in Canada, plus the tax outlay, will cost the company about $3,000,000 annually.

Paper Securities Reach New Highs

Pulp and paper shares have been holding the spotlight recently and there has been much speculation indulged in as to the future of the industry. Papers made new highs during the week ended March 7, the Montreal index closing 2.60 points higher at 138.15, the highest established for nearly four years.

A recent study of the paper industry by Watt & Watt indicates that they think that some of the paper leaders are regaining the investment standing they held before the depression.

Productive capacity of plants now in operation, the study indicates, bears a reasonable relationship to the available market. Another bright spot is the fact that the price of newsprint is at a profitable level—$63.80 in Canadian funds—and the fact that a large increase has taken place in the use of pulp for other purposes than newsprint. The study indicates that immediately after the war an increase in display advertising for consumer goods, is expected, will boost demand for newsprint, and they believe the production of plastics and paperboard containers will further increase demand.

Elements weighing against the paper stocks are seen to be the possible resumption of Scandinavian shipments with resulting lowering of newsprint prices, and the loss of the 10% premium on U. S. funds if the Canadian dollar is restored to par.

International Paper common at around 16 is singled out by the authors of the study as the best speculative investment in the paper list.

New Plants to Make Alcohol From Wood

It is reported here that two new alcohol plants, using wood instead of food raw materials to meet a supply deficit of alcohol, are to be established in the Northwestern States, using the methods developed at Thorold, Ont. It is said that one of these plants, already approved by WPB, will be constructed at Bilingham, Wash., and will use waste sulphite liquors from the wood pulp process and plans to produce 6,500 gallons of alcohol a day, equivalent to about two million gallons of 190-proof annually. Construction of this plant has been held up, it is said, until completion of the Thorold plant, and will incorporate improvements not originally included at Thorold.

The other plant, according to the report, is to be operated by Williamette Valley Wood Distillation

(Continued on page 36)

Reforesting Plan Outlined for Wisconsin

Five Million Acres of Cutover Land Will Be Replanted Under 25-Year Program Sponsored By Paper Industry In Wisconsin River Valley—Veteran Workers of Marathon Mills Meet—Other News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., March 13, 1944—Five million acres of cutover land in northern Wisconsin will be reforested over a 25-year period under a program outlined by the paper industry of the Wisconsin River Valley.

Organization papers have been filed at Madison, Wis., for "Trees for Tomorrow, Inc.," which is believed to be the first private industry project of its kind in the United States. Headed by Folke Becker, president of the Rhinelander Paper Company, Rhinelander, Wis., its officers and directors are executives of northern Wisconsin paper mills, and it will work in cooperation with state and county agencies.

An advisory committee will be named. It will include members of the state conservation department, the forest extension service, the University of Wisconsin College of Agriculture, and the state department of public instruction.

About a quarter of a million dollars has been made available to lay the groundwork for the first five-year phase of the program. Its aim is a vast self-sustaining reservoir for Wisconsin wood-using industries. The organization will encourage expansion of tree-planting on farmers' woodlots and on school forest tracts through 4-H Clubs and civic organizations.

The area involved, 46.5 per cent of the total in Wisconsin, comprises 26,000 square miles, but includes only 18.2 per cent of the state's population. Twenty-four of the 26 counties in the area, officials believe, now have forest zoning ordinances to prevent new agricultural development on sub-marginal land.

Most of the pulp and paper mills involved have had their own private forest tracts for years. These will not be supplanted by the new program.

"We know the importance of abundant raw materials and extensive natural resources," Mr. Becker said. "War has also revealed the many new uses of wood—our only basic raw material which can renew itself—and its place in our postwar economic way of life. Trees for Tommorow, Inc., hopes to become a valuable adjunct to the present efficient reforestation machinery which exists in Wisconsin."

He said that the program also involves greatly increased water conservation, control of soil erosion and floods, added recreational opportunities for the important vacation industry, and postwar employment potentialities.

Other officers include: Vice president, S. B. Bugge, president of the Tomahawk Kraft Paper Company, Tomahawk, Wis.; second vice president and executive director, former advertising manager of the Merrill Daily Herald, Merrill, Wis.; secretary-treasurer, D. B. Smith, manager and secretary-treasurer, Ward Paper Company, Merrill, Wis. The executive committee includes these officers and E. B. Hurst, head forester for Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis.

Members of the board of directors are: Stanton Mead and Mr. Hurst of Consolidated; A. J. Schierl, Whiting-Plover Paper Company, Stevens Point, Wis.; N. S. Stone, Mosinee Paper Mills Company, Mosinee, Wis.; D. C. Everest and E. E. Zahn, Marathon Paper Mills, Rothschild, Wis.; Harold S. Collins, Wausau Paper Mills, Brokaw, Wis.; Mr. Smith; Mr. Bugge; K. S. Dickinson, Tomahawk Pulp Company, King's Dam, Wis.; Mr. Becker and Robert Caldwell, Rhinelander Paper Company, Rhinelander, Wis.

Veteran Workers of Marathon Mills Meet

One hundred and fifty-one veteran employes of the Marathon Paper Mills Company at its plants at Rothschild, Ashland and Wausau, Wis., and 90 of the 95 eligible at the Menasha Products division at Menasha, Wis., attended organization meetings of the Marathon Quarter Century Club last week.

The meeting of the first group was held Monday evening, March 6, at the Elks Club at Wausau, and that of the Menasha Products division was held the following evening at the North Shore Country Club, near Menasha. These meetings also helped commemorate the thirty-fifth anniversary of Marathon.

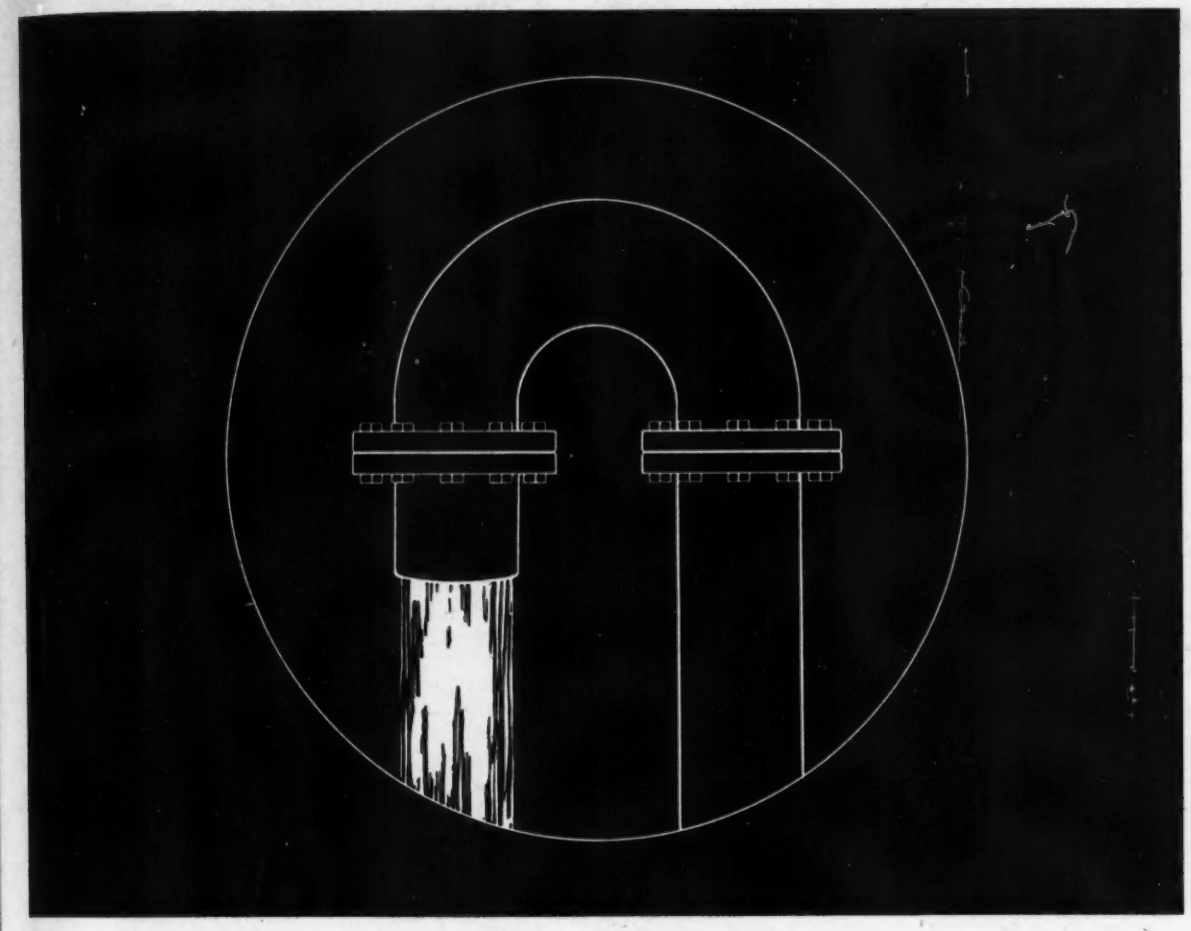
All the eligible employes—those of 25 or more years of service—received certificates of membership and certificates entitling them to gold watches, the latter to be delivered when they are again available to civilians. They were distributed by D. C. Everest, Marathon president and general manager, with exception of the award to Mr. Everest himself, which was made by C. S. Gilbert, an original stockholder who has long been active in the affairs of the company. Corsages were presented to the women present.

Mr. Everest, who is also the oldest employe in point of continuous service, was the speaker at both meetings. He touched briefly upon the company's plans for the future. The most important project is a new high grade bleached kraft pulp mill in Canada to supply requirements for pulp at Ashland, Menasha and Rothschild, and the acquisition of new pulpwood tracts in the Dominion.

"This is meant to insure our pulp supply for many years to come and will make our operations complete from 'tree to trade'—from pulp wood to finished paper and packages for food," he said.

"I doubt if there are many organizations in the United States which have as large a percentage of employes who have been associated with them for 25 or more years," Mr. Everest asserted. "In 1919, we had 655 employes and of that number 151 are still with us. This represents 23 per cent.

"In all past and future planning of the company's course, continuous employment for our people is uppermost in our minds. We are hopeful that we can provide re-employment after the war for each of the 781 Marathon men and women now in the country's service." During the depression years, approximately 95 per cent of continuous employment was maintained, he added.



Slime-free Pipes

"ALWAYS OPEN FOR BUSINESS" describes the slime-free pipes in those mills using "Lignasan"—the powerful bactericide and fungicide that controls slime-forming bacteria in unbleached sulphite pulp systems.

When you add "Lignasan" to your pulp, you reduce clogging of pipes, screens and rifflers . . . you cut down on the time and labor spent on washups and cleanings . . . you safeguard stock against bacterial and fungous attacks . . . you protect sugars, starches and adhesives from decomposition by bacteria.

"Lignasan" is extremely effective even in low concentrations. Added at the beater in powder form, 3 to 5 ounces per ton of dry fiber usually can be relied upon to control slime throughout the *entire* "wet" paper-making cycle. Or, "Lignasan" may be bled into the system at *any* point where slime formation tends to be excessive.

Many mill operators have credited "Lignasan" with substantial savings. Get the facts *today* on how "Lignasan" can help *you* curb profit-stealing slime, cut production costs and keep your mill at peak operating efficiency. Write our nearest branch office or E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemicals Department, Wilmington 98, Delaware.

INVEST IN VICTORY—BUY WAR BONDS

CONTROLS SLIME
PRESERVES PULP

Du Pont Lignasan

REG. U. S. PAT. OFF.

BACTERICIDE AND FUNGICIDE

DUPONT

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

Newsprint Price Considered Unsatisfactory

High and Rising Pulpwood and Unit Overhead Costs Cited By Canadian Official As Justification For Higher Newsprint Price At Mills—More Men Are Now Cutting Pulpwood—Other Mill News.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 13, 1944—An unnamed official of the Wartime Prices and Trade Board at Ottawa has been quoted in the papers here as saying that further adjustments may have to be made in newsprint prices. As the reason he said that newsprint manufacturers are seriously affected by rising costs of pulpwood production as well as by increasing unit overhead costs in mills with curtailed newsprint production. Recalling that a $4 per ton increase had been granted in March, 1943, and that a similar increase became effective September 1, 1943, he added: "Both the increases were authorized after full consultation with the United States Office of Price Administration, which authorized similar price increases in the United States. Neither of them was considered by the board to be sufficient to offset the whole increase in costs and further adjustments may have to be made."

Suggestion Comes From Ottawa

Commenting on this statement, the Financial Times of Montreal points out that the suggestion comes from Ottawa and not from the newsprint producers themselves who have not been pressing the price angle very strongly of late, being more concerned with production problems.

"Actually," it says, "unless and until such time as present tax rates applying to the pulp and paper companies are revised any further increase in price would have only limited effect on earnings of the bigger companies. Inasmuch as some publishers have indicated strong opposition to any further price increases, the Canadian companies have not been very active of late about further price revision, seeking to retain customer goodwill so far as possible.

"There is some basis, however, for further upward price change. At the time the two price advances of last year were announced, it was indicated by Canadian authorities that neither increase was considered fully adequate to meet higher costs. Also, newspaper publishers, with advertising up substantially, have been receiving, on the whole, higher revenues this past year."

Paper Order is Relaxed

The Wartime Prices and Trade Board has relaxed the curb on advertising literature to 25 pounds per consumer per month by permitting the use up to one ton of newsprint for this purpose in any calendar quarter. Allocation of fine paper for this kind of printing has been changed from 25 pounds in any one month to 75 pounds in any calendar quarter, this being done to provide for elasticity in use. In announcing this change, John Atkins said:

"While the revision of the order introduced December 1 last year will permit an increase in certain types of printed matter previously restricted, substitution of lightweight newsprint for heavier fine papers previously used will continue to effect over-all conservation of wood pulp.

"There has been and there is now no immediate prospect of an increase in the supply of fine papers. Not only is the whole industry faced with a shortage of pulp, but the fine paper mills, currently producing almost to capacity, are bound to meet essential domestic and export requirements. Despite restrictions in the use of fine papers introduced three months ago, the mills' backlog of essential orders remains substantial, and we must therefore continue all practical conservation efforts, both voluntary and by government order."

More Men Now Cutting Pulpwood

Good news continues to come regarding the progress of pulpwood production with between 8,000 and 10,000 more men in the woods than last winter, the outlook for restoring depleted wood piles at the mills is much better than earlier expected. Weather conditions, which are an important factor in the situation, have so far been favorable, there having been plenty of snow and cold weather, both of which facilitate movement in the woods. With a continuance of these conditions until the spring break up, hauling to the water-ways can be accomplished satisfactorily, and there will be plenty of water to carry the wood to the mills. Granted these conditions, the feeling is that the pulpwood cut will be sufficient to permit increase in pulp products production, more particularly of products other than newsprint. It may also permit substantial exports of pulp at the higher prices recently authorized by the U. S. Government.

Geon Resins and Plastics

Description of the unique group of polyvinyl resins and plastics which it has recently developed and offered for distribution to industrial users under the trade name Geon is contained in an unusually attractive four-page folder just issued by the Chemical Division of The B. F. Goodrich Company, Akron, Ohio, and available upon request.

One page is devoted to an outline of the characteristics of the four Geon resins. Two are special polymers of vinyl chloride marked for their thermal and light stability, toughness and general inertness. The others are vinyl chloride: vinylidene chloride copolymers which combine increased solubility and thermoplasticity with exceptional stability, chemical resistance and wide useful temperature range. A properties table for each is included.

Geon plastics is the subject of another page, with the range of characteristics described. The plastics are furnished in ready-to-use compositions, either of standard compounds or tailor-made formulations, in either sheet form or granules. One page is devoted to a partial list of the Geon resins and plastics applications, including electrical service, extruded products, gaskets and packing, as protective coatings, for coated fabrics and papers and calendered and cast sheets and films.

A MESSAGE

TO OUR MILL FRIENDS

WE ALL ARE FULLY AWARE OF THE MANY DIFFICULTIES THAT BESET YOU WHILE OUR COUNTRY IS ENGULFED IN A TITANIC STRUGGLE FOR HUMAN FREEDOM.

THE WAR MUST BE WON!

CIVILIAN NEEDS MUST OF NECESSITY BE SUBORDINATED TO MILITARY REQUIREMENTS. GRUMBLING AND COMPLAINING WILL SERVE NO USEFUL PURPOSE.

WE ARE FULLY APPRECIATIVE OF THE HERCULEAN EFFORTS YOU HAVE EXPENDED IN SUPPLYING OUR NEEDS. YOUR LOYALTY AND COOPERATION CANNOT BE QUESTIONED.

WHEN MORE PAPER AND BOARD ARE AVAILABLE, WE ARE CONFIDENT YOU WILL ALLOT US OUR SHARE.

WE EXTEND TO YOU ALL OUR SINCERE GRATITUDE.

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Successors to Maurice O'Meara Co. Established in 1855

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Chicago Paper Market is Reported Tighter

Kraft Papers and Paper Board Are In More Limited Supply and Demand For Other Paper Items Is Very Strong — Professional Group Meets — Salesmen's Association Installs New Committee.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., March 13, 1944—Despite "at the source" reports of slightly improved production of pulp, the Chicago paper industry continued this week to report a critically tight situation which showed no immediate signs of improvement. Civilian business requirements are in an increasingly perplexing state as order backlogs pile up week by week. A tighter manpower situation in the Chicago and metropolitan area has had an appreciable effect on the manpower situation here as it affects jobbers and sales outlets as well as a number of box and specialty mills. Groundwoods and newsprints were far behind in orders and the former was reporting increased use of "end use" bases for the sales of paper. Krafts were more tight and there was an increasingly noticeable feeling, in the paper board and container industry, that it would soon be difficult to find boxes and adequate protective coverings to ship merchandise to the retail outlets of the country. Books and covers were very strong and scarce while the sulphite list was slipped back weekly as far as order fulfillments were concerned. Waste paper collections here continued good and there is a definitely reported improvement in the method in which the salvage is getting to the mills.

Professional Paper Group Meets

One of Chicago's newest organizations, the Chicago Professional Paper Group, held one of its most successful meetings on Monday evening, March 6, when over one hundred members and guests assembled at the Hamilton Hotel to hear a discussion given by James Flett, head of the James Flett Organization. Mr. Flett, one of the outstanding leaders in his field, discussed "Waste Paper Salvage" and gave a stimulating, partly "off the record" description of the possibilities in the salvage of waste paper. Mr. Flett presented samples of various grades of waste paper, described how the paper was obtained, its use and potential use and its intrinsic worth. He also gave a most interesting visual demonstration of the de-inking of groundwood papers and specifically pointed out the proven merit of the process. The Chicago paper trade executive then discussed the government salvage drive, including both criticism and praise in his comment. He pointed out that a major weakness of the program had been the lack of coordination in getting the waste paper to the right spot after it had been collected by amateur efforts of a very spirited nature. He indicated that a better program must be devised to get the paper into the right spot in the quickest possible time.

Representatives of the Chicago Technical Association Council were also present at the meeting to discuss the aims of that group and to extend an invitation to members of the Professional Paper Group to participate in the panel discussions of the Technical Council to be held in April. It was also arranged that all of the Professional Paper Group would be placed on the mailing list of the Technical Council to receive meeting announcements and other information.

Harold R. Alley of Tested Papers, Inc., and president of the Chicago Professional Paper Group, presided at the meeting and introduced the program chairman, Mr. Harry Weston, editorial director of Paper Industry, who, in turn introduced the speaker of the evening.

Salesmen Install Officers

The western division of the Salesmens Association of the Paper Industry is now prepared for a record breaking year under the vice presidency of F. D. "Pat" Patterson of the Flambeau Paper Company who has already done yeoman service in "coming up from the ranks." Mr. Patterson was formally installed as vice-president of the division at the February 28 meeting of the Association at the Sherman Hotel. Mr. Patterson received his instructions from Burt Fisher of the Bergstrom Paper Company, president of the association.

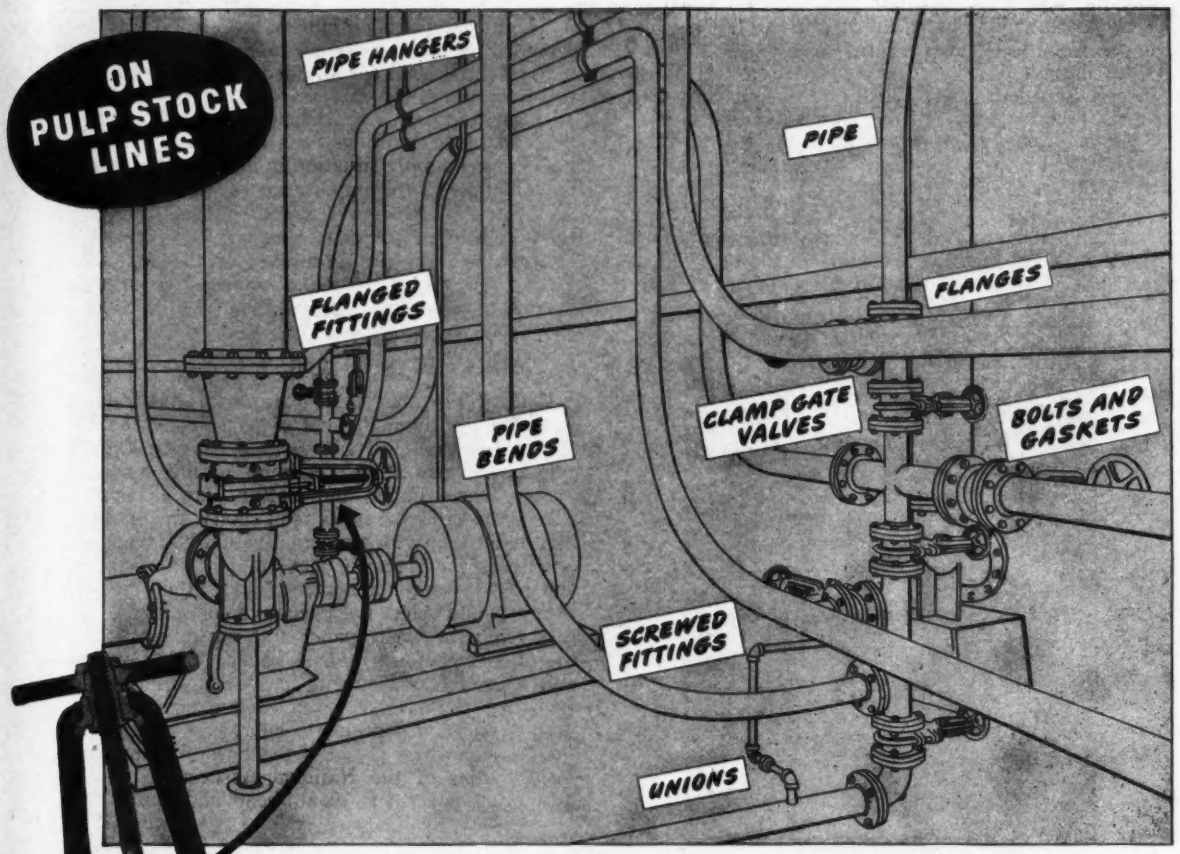
The Flambeau Paper Company sales executive then announced the chairmen of the standing committees for the ensuing year, introducing one novel and potential committee—the Program Committee—which will feature a rotating chairmanship. Members of this committee are Ralph H. Burnett, American Writing Paper Corporation; Donnel T. Evans, W. C. Hamilton & Sons; Graham D. Olson, American Writing Paper Corporation. Other committee chairmen announced were as follows: Education, Henry D. Fralick, International Paper Company; Membership, Joseph I. Heyer, Cherry River Paper Company; Social, Ben K. Babbitt, Brown Company and Golf, Louis A. Ellis, Northwest Paper Company. Mr. Ellis is to select his own assistant for the golf chairmanship duties. It was reported that the Association again had to "accept" the resignation of the popular and perennial Ben Babbitt as social committee chairman, but refused to budge from its position that Ben Babbitt's splendid performances of the past really presented no other alternative than reappointment of this popular gentleman.

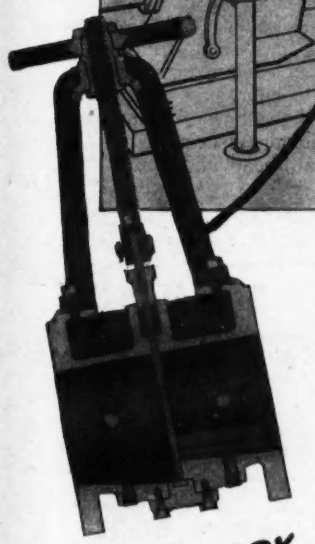
The March 6 meeting was perfunctory in character, with round table discussion and a most sympathetic and sincere expression of sympathy for Phil Howard in the tragic death of his wife.

Paper Institute to Award Degrees

Five candidates will receive Ph.D. degrees Monday evening, March 27, when commencement exercises will be held for students of the Institute of Paper Chemistry, Appleton, Wis. It will be the first time, since the Institute was founded in 1929, that a special commencement will be held. Heretofore its graduates have received their degrees at the regular commencement exercises of Lawrence College, with which it is affiliated. This year a difference in wartime academic calendars made the joint program unfeasible.

Piping by CRANE ...from end to end





IRON BODY PULP STOCK VALVES

One high standard of quality throughout . . . One source of supply . . . One responsibility for all materials

ALL piping materials in this pulp-handling system—pipe, pipe bends, bolts and gaskets, as well as valves and fittings—are supplied by Crane. While such completeness marks the Crane line, Crane quality design and construction insure the finest service from each single item.

The iron body pulp stock valve, for example, built exclusively by Crane. Its no-bonnet design eliminates any space where pulp can become clogged. The shearing action of its disc and cutting edge in the outlet port prevents jamming of pulp in the seats, and makes for tight closure.

In brass, iron, and steel equipment, the world's largest selection is yours in the Crane line. When you need a single fitting or complete piping system, choose Crane for quality that's backed by 89 years of leadership in the piping materials field.

CRANE CO., General Offices: 836 S. Michigan Ave., Chicago 5, Illinois

CRANE

VALVES • FITTINGS • PIPE
PLUMBING • HEATING • PUMPS

P. J. White Heads Waste Material Dealers

The thirty-first annual convention of the National Association of Waste Material Dealers, Inc., was held March 14-15 inclusive, at the Hotel Astor, New York. Paul J. White, president of the Great Eastern Packing and Paper Corporation, 250 Park avenue, New York, and Chairman of the National Waste Paper Committee, was elected president.

A committee, consisting of Clarence B. White, Joseph Benedetto and William J. Green, with Carlton B. Overton advisory member, submitted nominations on March 15 at which meeting Paul J. White and the following directors were elected:

Directors For 1944-1946

Nat. E. Berzen, Nat. E. Berzen, Inc., New York, N. Y.; David Charak, Federal Paper Stock Company, St. Louis, Mo.; Arthur U. Claghorn, Pioneer Paper Stock Company, Chicago, Ill.; Isadore Cohen, B. Cohen & Sons, Chicago, Ill.; Sidney Danziger, H. Kramer & Co., New York, N. Y.; David M. Dickson, Penn Paper and Stock Company, Philadelphia, Pa.; David Feinburg, David Feinburg Company, Medford, Mass.; Ezra Frankel, Frankel Bros. & Co., Inc., Rochester, N. Y.; Louis G. Galamba, Sonken-Galmba Corporation, Kansas City, Kans.; David Golub, Charles Harley Co., San Francisco, Calif.; H. L. Green, Industrial Metals and Textiles Company, San Francisco, Calif.; Emanuel Hettleman, K. Hettleman & Sons, Baltimore, Md.; L. J. Kelleher, Southern Converting Company, Greensboro, N. C.; Louis Lippa, Apex Smelting Company, Chicago, Ill.; Julis Muehlstein, H. Muehlstein & Co., Inc., New York, N. Y.; Harold Shilling, The U. S. Paper Supply Company, Chicago, Ill.; Lt. Col. Lowell S. Thomas, General Smelting Company, Philadelphia, Pa.

PAUL J. WHITE

Directors For 1944-1945

L. J. Messinger, George Birkenstein & Co., Chicago, Ill.; Robert Miller, R. & V. Miller, Inc., New York, N. Y.; J. Sider, The Loewenthal Co., Chicago, Ill.

Charles M. Haskins continues as secretary-treasurer and managing director of the association whose headquarters are at 1475 Broadway, New York.

Meeting Serves Constructive Purpose

The meeting was an important one and was largely attended by members of all branches of the industry. The essential need for an adequate supply of secondary raw materials can scarcely be emphasized too strongly and war requirements continue to urgently demand huge quantities of scrap metals and rubber. The critical supply situation in wood pulp, has directed attention to the importance of waste paper, rags and fibers. The meeting served the constructive purpose of bringing together the various groups within the industry for the discussion of the common objective—the fullest possible cooperation of the industry to meet the demands of war and achieve victory.

Waste Paper and Rag Institute

One of the important features of the convention were the conferences held to consolidate the Waste Paper Institute and the Associated Rag Industries into one organization, retaining in the consolidated name, Waste Paper and Cotton Rag Institute, the charter of the separate organizations. Functioning on this plan the new organization would be accorded full autonomy the right to pass on its own membership and in every other important matter; the new organization would select the executive committee and officers from the waste paper and rag groups, to form the committee of the Waste Paper Trade Committees and Cotton Rag Council; and each would function as before the merger; would retain non-members in their group and continue to exercise independence in their operations. Through the new organization, all the facilities of the National Association of Waste Material Dealers, Inc. would be available.

At the dinner, held on Wednesday, March 15, the featured speaker was Quentin Reynolds, well known war correspondent.

Warren Adds Star to Army-Navy "E"

Warren Steam Pump Company, Inc., has received notification from Navy Board for Production Awards that a star was now being added to Army-Navy "E" pennant awarded the company September 7, 1943.

In a letter received by George R. Rowland, president of the company, Admiral C. C. Bloch, U.S.N. (Ret.) wrote in part:

"The men and women of the Warren Steam Pump Company have achieved a signal honor by continuing their splendid production in such volume as to justify this renewal of their award. In the first instance it was difficult to win the Army-Navy "E" and by meriting a renewal, the management and employees have indicated their solid determination and ability to support our fighting forces by supplying the equipment which is necessary for ultimate victory.

The Navy Department extends to each and every man and woman of our company its hearty congratulations on their accomplishment and desires to express a fervent hope that future production will be even more outstanding."

1 ONCE A SAILOR FROM PAGE 47
MET A GIRL FROM PAGE 48;
THOUGHT, "AT LAST I'VE LANDED IN HEAVEN."
PROMPTLY ASKED, "MAY I HAVE A DATE?"

2 SHE SAID "YES," AND THEY GOT ALONG NICELY
TILL THE PAPER MAN SAID, "I FEAR
THIS SAILOR WILL MISS SHIP UNWISELY
IF HE TARRIES MUCH LONGER HERE."

3 SO INTO THE STOCK HE PUT "TI-PURE" PIGMENTS,
PIGMENTS THAT MADE THAT SHEET OPAQUE;
THE SAILOR LOST FANCY'S SWEET NEW FIGMENT—
BUT HE MADE HIS SHIP—AND ALL WAS JAKE.

Conclusion:

To keep printed matter from showing through, Du Pont pigments are the ones for you!

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for opacity, whiteness and brightness

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Pigments Dept., 1007 Market St., Wilmington, Del.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending March 11, 1944

STOCKS

	High	Low	Last
A. P. W.	2⅜	2⅛	2⅛
Armstrong Cork Co.	39¼	37	39¼
Celotex Corp.	12⅛	11⅛	12⅛
Celotex Corp., pf.	18	17½	17½
Certain-Teed Products Corp.	5⅜	5⅛	5⅛
Certain-Teed Products Corp., pf.	64¼	61	64
Champion Paper & Fibre Co.	27⅛	26⅜	26¾
Champion Paper & Fibre Co., pf.	112	110½	110½
Congoleum Nairn Co.	24⅜	23¼	24
Container Corp. of America	22⅜	20½	22⅜
Continental-Diamond Fibre Co.	12½	11¼	12½
Crown-Zellerbach Co.	17⅜	16⅞	17⅛
Crown-Zellerbach Co., pf.	99¾	98¾	99½
Dixie Cup Co.	16¾	16¾	16¾
Dixie Cup Co.—A	44¾	44½	44¾
Flintkote Co.	23⅞	22	23¼
Flintkote Co., pf.	....	....	....
Robert Gair	4	3¾	3⅞
Robert Gair, pf.	15⅛	14⅜	14⅜
International Paper Co.	16¼	14½	16
International Paper Co., pf.	74⅞	70	74⅛
Johns-Manville Corp.	95½	89¾	95½
Johns-Manville Corp., pf.	121 11/32	121⅛	121 11/32
Kimberly-Clark Corp.	34	32	34
MacAndrews & Forbes	26⅞	26½	26½
MacAndrews & Forbes, pf.	135¾	135½	135½
Masonite Corp.	39	38½	38¾
Mead Corp.	10	9½	9¾
Mead Corp., pf. A—6%	88	88	88
Mead Corp., pf. B—5½%	81	77½	80
National Container Corp.	13½	12⅞	13½
Paraffine Companies, Inc.	49¾	48	49⅜
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	15⅛	13	15
Rayonier, Inc., pf.	29½	28⅞	29½
Ruberoid Co.	30¼	28⅞	29¼
Scott Paper Co.	39½	39	39
Scott Paper Co., pf.	109	109	109
Sutherland Paper Co.	31⅝	31⅜	31⅜
Union Bag & Paper Corp.	11	10	10⅞
United Paperboard Co.	5¼	5	5
U. S. Gypsum Co.	75	71¾	75
U. S. Gypsum Co., pf.	178¾	176	178¾
West Virginia Pulp & Paper Co.	19¾	19	19
West Virginia Pulp & Paper Co., pf.	106⅞	106	106

BONDS

Abitibi Pulp & Paper Co., 5s '53	72⅜	71½	72
Celotex Corp. 3¾s '55	103⅛	103⅛	103⅛
Certain-Teed Products Corp. 5½s '48	101⅜	100½	100½
Champion Paper & Fibre Co. 4¾s '50	....	....	....
International Paper Co. 6s '55	108¾	107½	108¼
International Paper Co. 5s '47	104¼	104	104¼
Mead Corp. 3½s '53	....	....	....
West Virginia Pulp & Paper Co. 3s '54	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending March 11, 1944

STOCKS

	High	Low	Last
Great Northern Paper Co.	33	31½	33
Hummel-Ross Fibre Corp.	5¾	5⅜	5½
St. Regis Paper Co.	5¼	4⅞	5⅛
St. Regis Paper Co., pf.	154½	153¾	153¾
Taggart Corp.	5⅜	5¼	5¼

BONDS

American Writing Paper Co. 6s '61	....	....	....

Great Northern Earns $1,859,895

The Great Northern Paper Company and Subsidiaries have reported as follows for 1943: Net profit, after Federal taxes of $1,237,215, was $1,859,895, equivalent to $1.86 a share, compared with $1,686,528, or $1.69 a share, in 1942 after taxes of $1,121,409.

Schumacher Reports for Nine Months

The Schumacher Wall Board Company has reported as follows for the nine months to January 31: Net income, $111,539 or $1.04 a common share, against $113,812 or $1.08 a common share for nine months to January 31, 1943.

Crown Zellerbach Earns More

The report of the Crown Zellerbach Corporation and its subsidiaries shows a consolidated net profit for the nine months ended with January of $5,656,174 equal, after preferred dividend requirements, to $1.62 each on 2,261,199 shares of common stock.

For the corresponding period of the company's previous fiscal year the net was reported at $5,327,483, or $1.48 a common share. Sales were increased to $73,517,101 from $61,890,655 volume for nine months to January 31, 1943.

Provision for taxes on income totaled $5,565,040 after deducting tax credits representing debt retirement credit of $132,740 and post-war refund of $222,369. A year ago total taxes on income were $5,245,099, tax credits being taken into account at the year-end.

In January, this year, the corporation prepaid $500,000 of its long-term bank loans, reducing the balance to $2,500,000 due in 1946 and 1947.

Robert Gair Reports $1,064,486

Robert Gair Company, Inc. and its domestic and Canadian subsidiaries report combined net profit for the year ended December 31, 1943 or $1,064,486, after provision for Federal taxes of $2,177,318, equal to 74 cents per share on the Common stock after payment of Preferred dividends. This compares with combined net profit for 1942 of $991,905, after provision for Federal income taxes of $1,690,435, equal to 68 cents per share on the Common stock after payment of Preferred dividends. Combined net profit for 1942 was after deduction of $277,435 for losses on sale of capital assets and investments in the United States. Canadian earnings in both years were included at current rate of exchange.

Congoleum-Nairn Nets $1,539,661

Congoleum-Nairn, Inc. reports as follows for 1943: Net income, after $1,035,000 provision for taxes, was $1,539,661, equal to $1.23 a share. Comparative net income for 1942 was $1,611,926, or $1.29 a share. Current assets on December 31, last, totaled $18,222,455 and current liabilities were $2,921,852.

National Gypsum Earns $973,014

The National Gypsum Company reports as follows for 1943: Net income, after $923,557 taxes on income, was $973,014, equal, after preferred dividend requirements, to 50 cents each on 1,357,434 common shares. This compares with 1942 net of $1,048,059, or 56 cents a share, after $1,521,493 tax charges,

Nashua Gummed Paper Nets $470,363

The Nashua Gummed and Coated Paper Company has reported as follows for 1943: Consolidated net profit, after $757,331 provision for taxes, was $470,363, equal to $10.21 each on 46,058 common shares, against $429,261, or $9.32 a share for 1942, when

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You can plan now to knock out corrosion "trouble-spots" with ARMCO Stainless Steel.

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EXPORT: THE ARMCO INTERNATIONAL CORPORATION

THE AMERICAN ROLLING MILL COMPANY

$580,109 was provided for taxes. Consolidated current assets on Dec. 31 last were $3,812,546 and current liabilities $1,120,543, giving net working capital of $2,692,090, against $2,476,744 a year earlier.

Whitaker Paper Increases Income

The Whitaker Paper Company has reported as follows for 1943: Net income, $256,320, against 1942 net income of $216,456.

Puget Sound Declares Dividends

The board of directors of Puget Sound Pulp and Timber Company today declared a dividend of 25 cents a share on the common stock and the regular quarterly dividend of 30 cents a share on the preferred stock, both payable April 1 to stockholders of record March 18, 1944.

Hinde & Dauch Nets $1.40

The Hinde & Dauch Paper Company (Canada) reports for 1943 a net income of $420,313, or $1.40 a share, including post-war refund, against $526,508 net, or $1.76 a share on same basis the year before.

Glatfelter Co. Profits Off

The P. H. Glatfelter Company for 1943 reports net earnings, after all charges and taxes and $40,000 reserve for post-war adjustments, were $175,666, against $194,308 earned the year before.

Hummel-Ross Fibre Pays Dividend

The Hummel-Ross Fibre Corporation has declared a dividend of 10 cents a share on the common stock. It paid 7½ cents in each quarter last year, with an extra of 10 cents in December.

New England TAPPI to Meet

There will be a joint meeting of the Connecticut Valley Division of the Superintendents' Association and New England Section of the Technical Association of the Pulp and Paper Industry at the Hotel Kimball in Springfield, Mass., on Friday, April 21. There will be a dinner at 6:30 P.M. to be followed by a business meeting on the subject of sulphite pulp. Attending this meeting will be Stanford G. Blankinship, President of National Superintendents' Association, Vance P. Edwardes, President of National TAPPI, and Johannes Westergaard of Castle & Overton, Inc. An invitation has been extended to the Maine-New Hampshire technical group and the Northeastern Superintendents' Association to attend this meeting.

Maxwell Emerson Now Lieut. Col.

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 13, 1944—Maxwell Emerson, son of Howard Emerson, manager of the Boston office of Crocker Burbank Papers, Inc., now overseas in the Southwest Pacific with the U. S. Army, has been promoted to lieutenant-colonel from major. Lieutenant-Colonel Emerson is Quartermaster of the 32nd Division. He was formerly salesman for the Crocker Burbank firm about four years, covering Boston and Eastern Massachusetts. He enlisted in the Army in the summer of 1941.

Certain-teed to Vote April 12

Stockholders of the Certain-teed Products Corporation will vote at their annual meeting in Chicago on April 12 on the recapitalization plan presented last October, under which accumulated dividends on the 6 per cent preferred stock would be eliminated and $7,100,000 of 5½ per cent debentures would be retired, providing some additional working capital as well.

In lieu of each share of stock and accumulated dividends of $41.50 a share, the prior preference stockholders would receive under the plan $100 par value of 4 per cent cumulative income subordinated debentures and two shares of common stock. This would require the issuance of $6,737,300 of new debentures and 134,746 common shares.

Following this recapitalization it is proposed to sell for cash a new issue of $5,500,000 of 12-year senior debentures with an interest rate of not more than 4½ per cent. In addition the common stockholders would have the right to purchase 208,446 shares of common stock on terms to be arranged later.

Bror Dahlberg, chairman of the company, says in the proxy statement that in the ten years 1928 to 1937 the company sustained an aggregate net loss of $8,642,000 after income taxes, reducing working capital from $10,834,000 to $4,136,000.

"Because of this situation," he says, "the company was obliged to reduce expenditures for repairs, renewals and additions to plants, machinery and equipment. These losses prevented working out a recapitalization program. However, since 1938 there has been a complete reversal of operations, without which any recapitalization would be impossible."

Goes with Foremen's Institute

Bruno R. Neumann, until recently senior economist with the Planning Division of the War Production Board, has joined the National Foremen's Institute, Inc., Deep River, Conn. as labor economist and editorial director. He will make his headquarters at the company's editorial office, 527 Fifth avenue, New York, N. Y. Mr. Neumann will head up the Institute's research and consulting service on labor economics and labor relations. The Foreman's Letter and the Executive's Labor Letter will be under his editorial direction. Prior to his service with the War Production Board, Mr. Neumann was a member of the economic research staff of the National Association of Manufacturers. His experience abroad includes intimate familiarity with economic and labor relations problems in Great Britain and other European countries as well as the United States.

Work Progresses on Brazilian Mill

Companhis Nacional de Papel e Celulose, Rua Florencio da Abreu, 54, San Paulo, Brazil, which is erecting a mill to manufacture newsprint and other paper products and which was expected to go into operation about May, will, it is reported, probably not be able to conform to this schedule as the company is experiencing many obstacles in receiving shipments of machinery and other necessary supplies to proceed with the work of finishing construction. Work on the plant, however, is being carried on as rapidly as the circumstances will permit and commercial operations will be started, it is stated, just as soon as possible.

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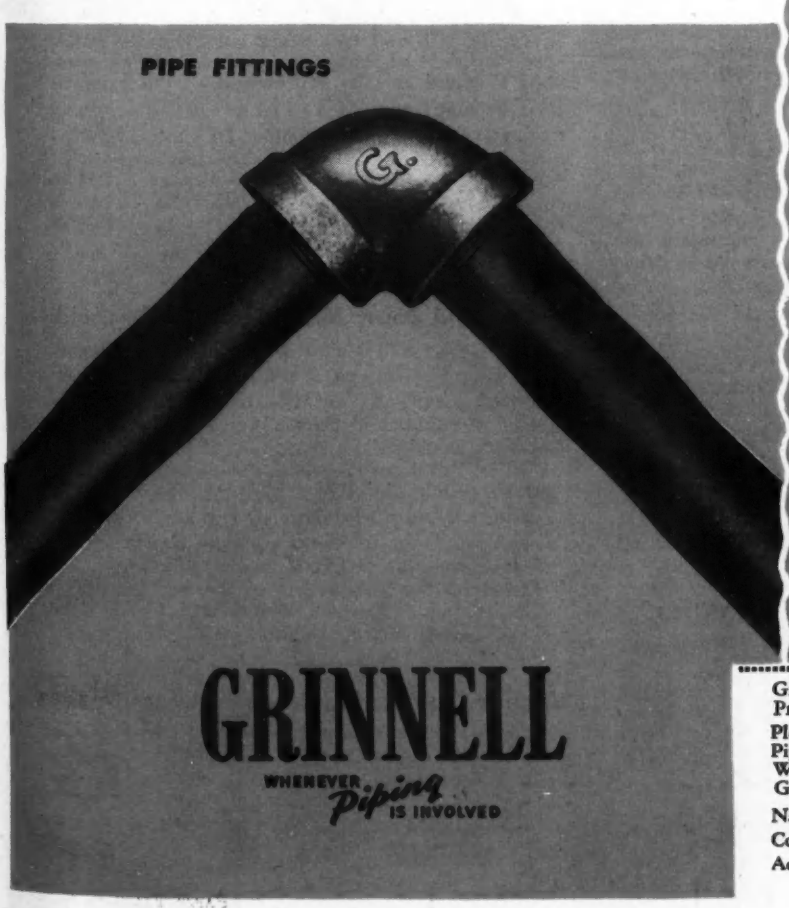

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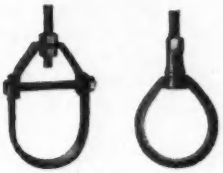
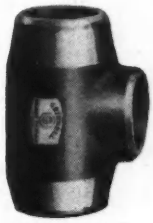


Pipe Hangers



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Deviation from Specifications

The following circular letter which is entitled, "Authority to Deviate from Federal Specifications for Paper and Paper Products," has been addressed to the heads of the government departments and establishments by Clifton E. Mack, director of procurement.

The Deputy Director Procurement Policy Division, War Production Board, has advised that because of the critical condition of the supply of wood pulp in the United States, it has become necessary for many of the paper manufacturers to use low-grade fibrous materials, such as waste papers and ground wood pulp, in the manufacture of fine papers in which such materials have not hitherto been used.

The situation is so critical that difficulty is being experienced by Government agencies in securing adequate coverage of paper requirements when purchases are made on the basis of the present Federal Specifications for paper and paper products, as it is generally impossible for manufacturers using the low-grade fibrous materials to produce papers and paper products that will comply with the specifications. The supply of the fibrous raw materials is so variable from day to day that it is no longer possible to keep in step with the rapidly changing conditions by changes in the Federal Specifications.

In order to meet this situation, you are hereby authorized to permit deviation from the Federal Specifications, whenever this becomes necessary for the above reason, by insertion of the following or equivalent language in your invitations for bids for paper and paper products:

"If a prospective bidder is unable because of the critical condition of paper making materials to furnish a product complying with the applicable Federal Specifications, consideration will be given to a bid for supplying an alternate product, provided, (1) that he states in what respect his product will deviate from the requirements of the specification; (2) that he submits a sample of his current product with his bid; and (3) if at the time of manufacture, pulp allocation or supply of other materials will further adversely affect the quality of the bidder's product, he will notify the procurement office of such fact, either for approval or rejection of the quality to be supplied."

This authorization does not apply to technical papers such as blue print paper, map paper, perforator teletype paper, recording instrument chart paper, tracing paper, and such papers of related natures that may be construed as technical papers.

Federal Specifications for paper and paper products will be kept as nearly in accord with the changing conditions of supply as is possible, either by amendment or revision.

To be Superintendent at Saugerties

SAUGERTIES, N. Y., March 13, 1944—The Diamond Mills Company here is now operating under the direction of James Talmadge, superintendent, who last week assumed his duties at the local plant on the South Side. Mr. Talmadge succeeds Harold Van Voorhis, who has been transferred to be the manager of the New York city Office of the company. Mr. Talmadge, a native of Canada, came to Saugerties fom New Jersey and is a papermaker of many years experience.

Paper is Essential War Material

J. R. Diggs of the Chicago office of the Mosinee Paper Mills writes as follows:—"On page 16 in your March 2 issue of the PAPER TRADE JOURNAL there is an article headed 'Makes Paper Bomb Wheels.'

"In this article reference is made to 'A new synthetic resin which makes paper tough enough to withstand rain, mud and snow now permits the use of this *non-essential* material for the guards,' etc.

"Through the Chicago Ordnance District office, we have watched with interest the development of these bomb wheels and are very gratified to note how paper has been substituted for metal. However, the article quoted indicates that paper is a non-essential material. Perhaps this got by your editors, but on account of present conditions, it seems to us to warrant a correction in an early issue of the PAPER TRADE JOURNAL. Certainly, to-day paper is more essential than many metals."

B. B. Stringfellow Leaves Albemarle

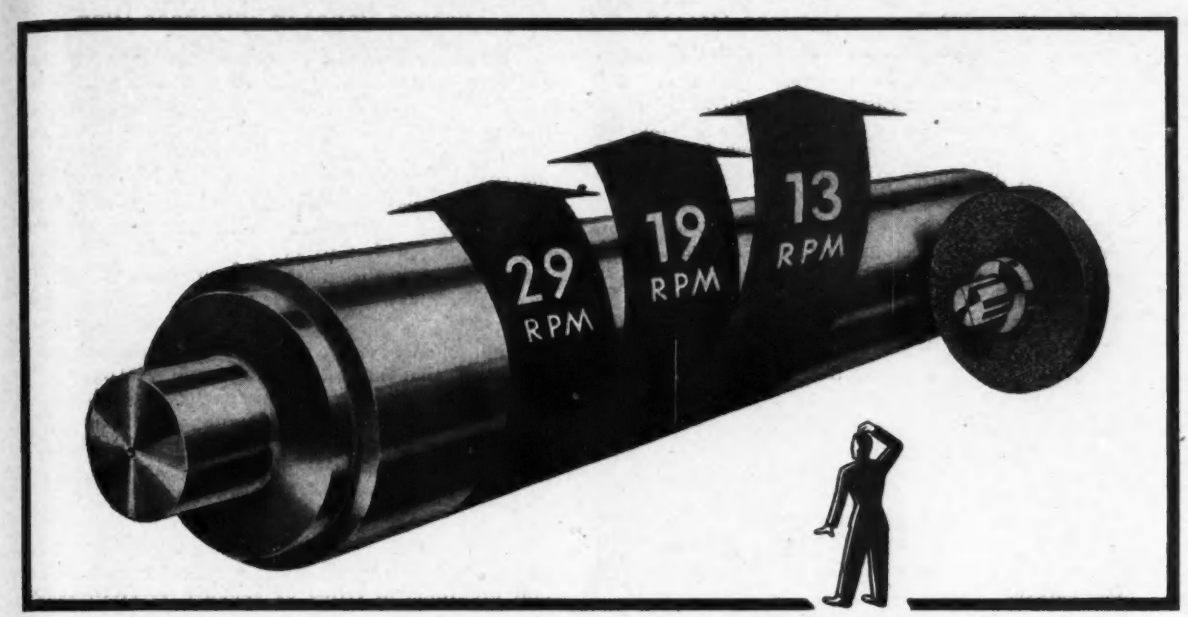
RICHMOND, Va., March 14, 1944—Blair B. Stringfellow, Jr. is resigning as secretary of the Albemarle Paper Manufacturing Company after eighteen years of service to become associated with Otto F. Hamilton and also the Hamilton Paper Corporation as of April 1. Mr. Stringfellow entered the employ of the Albemarle Paper Manufacturing Company on July 5, 1926 as helper in the finishing department of their Riverside Mill and two years later became assistant superintendent of that mill. In May, 1929 he went to New England as sales representative. On January 1, 1932 he was transferred to New York and promoted to Eastern kraft sales manager. In June, 1933 he returned to the mill to act in the same capacity. He was named sales manager on April 1, 1934 and elected secretary on April 1, 1938. As yet no successor has been appointed by the Albemarle Paper Manufacturing Company.

To Hold Joint Meeting at Springfield

The Connecticut Valley Division of the American Pulp and Paper Mill Superintendents Association will hold a joint meeting with the Technical Association of the Pulp and Paper Industry at Hotel Kimball, Springfield, Mass., April 21, 1944. The speakers are to be Stanford G. Blankinship, president of the American Pulp and Paper Mill Superintendents Association; Vance P. Edwardes, president of the Technical Association of the Pulp and Paper Industry and Johannes Westergaard, vice president of Castle & Overton, Inc. The topic of the evening will be "Sulphite Pulp." Dinner is scheduled for 6:30 P.M. and will be followed by the meeting.

Nashua Gummed Company Raises Wages

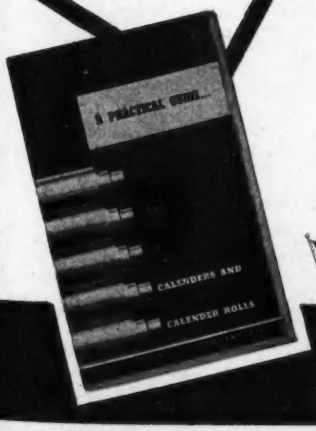
BOSTON, Mass., March 14, 1944—A three-cent-an-hour wage increase has been approved for more than 1,000 production workers of the Nashua Gummed and Coated Paper Company of Nashua, N. H., it was announced here last week by the New England War Labor Board.



CHOICE OF WORK SPEED

is very important in regrinding calender rolls

If you have found work speed, traverse speed or wheel speed a problem, why not write for a copy of our 32-page booklet, "A PRACTICAL GUIDE TO CARE OF CALENDERS AND CALENDER ROLLS." Many other roll grinding problems are also discussed. Just fill out the coupon and send it to us. No charge, no obligation.



There is no one work speed which is right for regrinding all rolls. In the first place, the speed is very definitely related to the diameter of the roll being ground. This was shown by the answers we received to a questionnaire sent to a large list of paper mills. We asked, "What rpm. of the roll do you find most satisfactory for the following approximate diameters when grinding chilled iron rolls?" Here are the averages of the answers received:

Diameter of Roll (Inches)	Speed of Roll RPM	Surface Speed Feet per Minute
8 to 10	29	61 to 76
11 to 13	25	72 to 85
14 to 16	24	88 to 100
17 to 19	21	94 to 105
20 to 22	19	100 to 110
23 to 25	18	109 to 118
26 to 28	16	109 to 118
29 to 31	14	106 to 114
32 to 34	13	109 to 116

The choice of work speed is also affected by the length of the roll face. Long rolls of comparatively small diameter have a tendency to vibrate, which can usually be overcome by reducing the rpm. Roll vibration causes whipping, which results in an oval-shaped roll and chatter marks. When resinoid wheels are used, best results are obtained by increasing the work speed about 30 per cent above the speed for shellac wheels.

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Southern Pulpwood Prices Raised

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 15, 1944—Pulpwood ceiling prices in southeastern and central southern areas of the country were raised by the Office of Price Administration today in a move to assist in maintaining production of vitally needed supplies of this commodity.

Mills that convert the pulpwood into woodpulp and subsequently into paper and paperboard will absorb the increases granted today. Their products are ceilings, which are not changed. Thus there will be no change in ultimate consumer levels.

The following actions, effective March 11, 1944, were taken by the price agency.

1. Pulpwood ceilings of producers were raised 80 cents per cord in South Carolina, Georgia, Florida, Tennessee, Mississippi, Alabama and Louisiana east of the Mississippi River. The dealer allowance in this area was increased 25 cents per cord from 50 cents to 75 cents. The new ceilings for producers, are $7.60 for rough pine, $8.10 for rough hardwood and $10.80 for peeled hardwood, f.o.b. cars, and $8.75 for pine f.o.b. barges.

2. Pulpwood ceilings were raised $1.10 per cord in Arkansas, Texas, and that portion of Louisiana west of the Mississippi River. The new ceilings, f.o.b. freight cars or barges, are $8.35 per cord for pine and $8.80 per cord for southern hardwood. These ceilings include dealers' commissions.

3. Pulpwood ceilings of producers were increased 50 cents per cord in those counties formerly designated as Zone 1 in the regulation governing pulpwood produced in North Carolina and that portion of Virginia west of the Counties of Craig, Montgomery, Floyd and Patrick. Zone 1 included numerous counties in both North Carolina and Virginia. The ceilings heretofore applicable to Zone 2 are now established for the entire territory covered by the regulation. They are: $7.60 for rough pine and $8.10 for rough southern hardwood, f.o.b. cars.

Today's action has been taken to facilitate the program of the War Production Board in procuring vitally needed pulpwood, which is the basic raw material in kraft paper and paperboard products needed for packaging military goods for shipment to every corner of the globe, as well as goods essential in the civilian economy.

In the three areas covered by today's action, pulpwood production dropped 35 per cent in January and February 1944 from the level of production during the last part of 1943. This was attributed to adverse weather conditions, difficulties of operation, and cost increases.

Today's increases in ceilings are expected to assist in the maintenance of normal production. Increases were requested by substantial numbers of producers and purchasers in these areas, and numerous meetings were held with the industry.

Irish Paper Mills Rely on Wheat Straw

Irish paper mills had to rely almost entirely on domestic wheat straw and what waste paper they were able to collect to sustain operations in 1943. Since coal was not obtainable, it may be assumed that many mills used peat in their boilers, according to a report to the Department of Commerce.

Discuss Paper in Purchase Plan

The adaptability of the War Production Board's authorization purchase plan to include paper board, from which set-up and folding boxes are made, as a basic material, was explained to the Boxboard, Folding Box, and Set-Up Box Industry Advisory Committees at a recent joint meeting in Washington.

At the meeting, Harold Boeschenstein, acting director of the WPB Forest Products Bureau, told the committees that paper, paper board and lumber now constitute the most difficult problems facing WPB, because of their close relation to almost everything else produced.

Emphasizing the importance of war packaging, he estimated that almost all of some 700,000 items ordered by the Army require paper, paper board or lumber for packaging or boxing. The paper and paper board shortages can be solved by WPB, with the cooperation of the industry, just as it is solving other material problems, Mr. Boeschenstein said.

The authorization purchase plan grew out of the Controlled Materials Plan, which is essentially simple in that it considers war and essential civilian production programs in terms of supplies of steel, copper and aluminum as common denominators, Walter C. Skuce, director of the WPB Controlled Materials Plan Division, explained.

CMP, he pointed out, attempts to establish feasible programs within the limits of available supply, and is operating very successfully. Attention was called to the large increases in production of finished war and essential civilian items, involving the three controlled metals, in spite of very small increases in the actual available supply of these metals.

It was considered as logical, Mr. Skuce said, that paper board, like container board, should be handled as a basic raw material under an allocation system, but he emphasized the necessity of the cooperation of the industry if the plan is to succeed.

Under the allocation plan, individual consumers of paper board and boxboard would advise the WPB what quantities they had been getting in the past, what amounts they needed and the nature of their end uses. Purchase authorizations would not be issued for greater amounts than could be met by available supplies, it was explained, and demands would be adjusted by limitation orders. By this method of ascertaining total demand and total supply, and adjusting demand where necessary, WPB would avoid issuing so-called "hunting licenses" under which a prospective purchaser could buy any such material he located. Under the plan, a buyer who is issued a purchase authorization is assured of its validity.

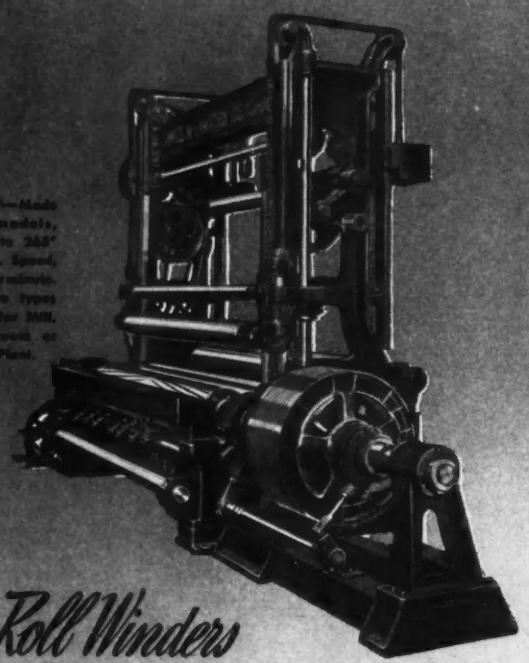
In response to suggestions from members of the industry that priorities should be used, Mr. Skuce said that they are satisfactory as long as sufficient materials are available and the only problem is a matter of precedence of orders. However, where the basic material is not sufficient, priorities alone are insufficient, and in such a situation allocation must be adopted, he pointed out.

Proposals for the allocation of waste paper were impractical and impossible to administer, Mr. Boeschenstein said. He reiterated his plea for additional efforts of the industry in the collection of essential waste papers and added that he believed the black market in waste paper could be eliminated only by the collection of sufficient paper to meet demands.

EVER DUNK A MAP ?

Long immersion in sea water or tropical downpours have no ill effect on the Army's new maps. They can be wrung out and dried because they're printed on water-proof paper. What's more, by using fluorescent inks, maps can be read in the dark, without lights. Where do these developments fit into the civilian economy? And who is going to graze first in these lush new fields opening up for the paper industry?

SAMUEL M. LANGSTON COMPANY, CAMDEN, NEW JERSEY



TYPE "DA"—Made in three models, widths up to 268" and above. Speed, 2000 feet per minute. One of five types and sizes for Mill, Finishing Room or Converting Plant.

LANGSTON *Slitters and Roll Winders*

February Newsprint Statistics

Production of newsprint in Canada during February 1944 amounted to 240,005 tons and shipments to 227,387 tons according to the News Print Service Bureau. Production in the United States was 53,852 tons and shipments 54,033 tons. The output in Newfoundland was 21,586 tons and shipments were 15,278 tons making a total North American production of 315,443 tons and shipments of 296,698 tons. Total production in February 1943 was 299,961 tons and shipments were 299,182 tons. There was one more working day in February 1944 than in February 1943.

The Canadian mills produced 27,312 tons more in the first two months of 1944 than in the first two months of 1943, which was an increase of six percent. The output in the United States was 19,944 tons or fourteen and nine tenths percent less than in the first two months of 1943; in Newfoundland production was 15,028 tons or fifty-four and eight tenths percent more, making a net increase of 22,396 tons, or three and six tenths percent more than in the first two months of 1943.

Stocks of news print paper at the end of February were 111,074 tons at Canadian mills, 10,063 tons at United States mills, and 52,895 tons at Newfoundland mills, making a combined total of 174,032 tons compared with 155,287 tons on January 31, 1944, and 189,147 tons at the end of February 1943. There was some further accumulation of tonnage at points from which water shipments will later be made.

Dr. Illick Heads Education Division

Dr. Joseph S. Illick, Head of the Department of Forest Management, and acting assistant dean of the New York State College of Forestry, Syracuse, N. Y., has been elected by the membership of the Society of American Foresters as chairman of the Division of Education for the biennial period 1944-45.

Other elected officers who will serve with Chairman Illick are: vice chairman, Paul M. Dunn, dean of the School of Forestry, Oregon State College; secretary, Professor T. D. Stevens, Department of Forestry, Michigan State College; executive committeemen, Dr. E. R. Martell, Department of Forestry, Purdue University, and Professor R. M. Brown, Division of Forestry, University Farm, St. Paul, Minnesota.

Dr. Illick announced that a Nation-wide study would immediately be undertaken by the Division of Education to coordinate forest education more effectively with the war effort. Special consideration will be given to the development of progressive programs for forest education in the postwar period. Dr. Illick said, "I anticipate an enormous increase in enrollment in the American forestry schools immediately after the war."

N. B. Scott Made Sales Mgr.

Norman B. Scott, who has been in the felt representative in the New England territory of the Orr Felt and Blanket Company, manufacturers of paper makers felts and blankets at Piqua, Ohio, has been made sales manager of the felt division of the company. The Orr Felt and Blanket Company has procured the services of Joseph A. Waters, formerly with the American Wringer Company in this same territory, to fill Mr. Scott's former position.

T. B. McCabe Elected Chairman

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 15, 1944—Election of Thomas B. McCabe, president, Scott Paper Company, Chester, Pa., by the Business Advisory Council for the Department of Commerce to serve as chairman succeeding R. R. Deupree, president, Proctor and Gamble Company, Cincinnati, Ohio, who was chairman during 1942 and 1943 was announced today by Jesse Jones, Secretary of Commerce.

Mr. McCabe entered the service of the Scott Paper Company in 1916 following graduation from Swathmore College in the preceding year. He served the company successively as salesman, assistant sales manager, sales manager, and vice president before being named president in 1927.

T. B. McCABE

He is chairman of the Board of the Federal Reserve Bank of Philadelphia; director of Nova Scotia Wood Pulp and Paper Company, Ltd.; the Brunswick Pulp and Paper Company; and the American Viscose Company.

Mr. McCabe formerly served as special assistant, Industrial Materials Department, Advisory Commission to the Council of National Defense; Deputy Director, Priorities Division, Office of Production Management; and Deputy Administrator and Acting Administrator, Office of Lend-Lease Administration.

Goes with Reynolds Metals Co.

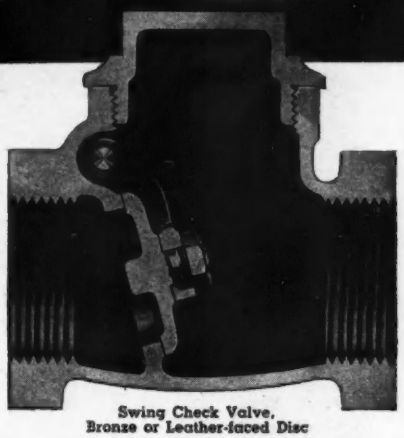
R. S. Reynolds, president of the Reynolds Metals Company, announces the election of C. Davis Blackwelder as a vice president of the company. Mr. Blackwelder will be in charge of engineering and will be located at the home offices of the company in Richmond, Va. He recently withdrew from the partnership of J. E. Sirrine & Co., engineers, with whom he had been connected for 21 years.

Mr. Blackwelder has been associated with Reynolds engineers on several large projects during the past three years.

He is a member of the American Society of Mechanical Engineers, American Institute of Chemical Engineers, National Society of Professional Engineers, Chi Beta Phi, Gamma Sigma Epsilon, and Tau Beta Pi.

An Occupational Questionnaire for CHECK VALVES

Since valve materials are on the critical list . . . and valves are becoming increasingly hard to obtain, even by war plants . . . it is doubly important that the right valve be selected for each installation. Before deciding on a particular type of CHECK VALVE, read the following suggestions for proper application.



Swing Check Valve,
Bronze or Leather-faced Disc

WHEN MAY SWING CHECK VALVES BE USED? Swing check valves operate best on horizontal lines. If used on vertical lines or at an angle, they should be installed so that the flow will be upward through the valve.

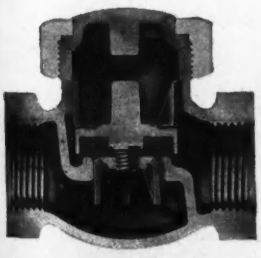
WHAT ARE THE ADVANTAGES OF LIFT CHECK VALVES? Lift check valves have less tendency to slam than swing check valves. They can be fitted with a spring to eliminate chattering and pounding where the flow is irregular or subject to quick reversal.

WHERE SHOULD VERTICAL CHECK VALVES BE USED? Vertical check valves should be used on vertical lines only, and with the flow upward through the valve.

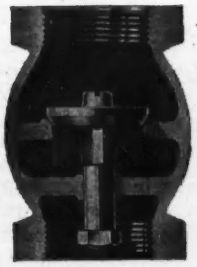
WHAT PLANTS SHOULD HAVE NON-RETURN STOP AND CHECK VALVES? Every plant using more than one boiler should have a non-return stop and check valve between each boiler and the main header. These valves are a necessary safeguard to boilers as they close automatically in case the pressure in a boiler is reduced by a tube rupture, boiler shut-down or other cause. The valve remains closed until the boiler pressure equalizes with that of the header. It then opens automatically and promptly, and can be closed manually whenever desired.

WHEN ARE COMPOSITION DISCS SUITABLE? Check valves with composition discs are suitable for pressures up to 150 lb. steam.

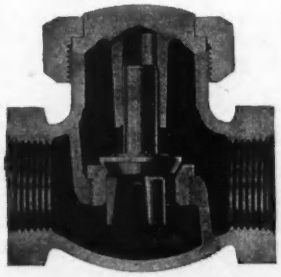
FOR WHAT SERVICES ARE METAL DISCS PREFERABLE? Metal discs for check valves are preferable for high temperatures and for severe service.



Lift Check Valve,
Renewable Composition Disc



Vertical Check Valve,
Bronze Disc



Lift Check Valve,
Renewable Alloy Disc and Seat Ring

When you are up against a valve selection problem, write us. As Kennedy makes a complete line of standard gate, globe, angle and check valves, you can be sure of receiving unbiased recommendations for the correct selection of equipment. Send for copy of the 240-page Kennedy Catalog, illustrating and describing Kennedy products.

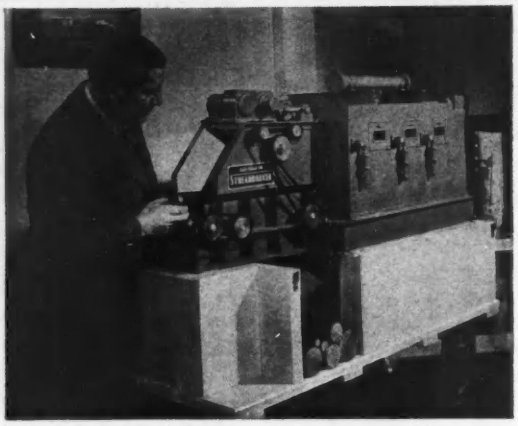
KENNEDY VALVES • PIPE FITTINGS • FIRE HYDRANTS
THE KENNEDY VALVE MFG. CO. • ELMIRA, N. Y.

New Log-Barking Machine

A new log-barking machine to expedite the production of pulpwood for paper has been announced by the Allis-Chalmers Manufacturing Company, Milwaukee, Wis. Known as the "Streambarker," the new unit employs powerful jets of water to remove the bark from the logs and clean them, making it possible to handle from 10 to 11 cords of wood an hour with a small working force.

Although the idea of barking logs and pulpwood sticks hydraulically is quite old, the new Allies-Chalmers machine, known as the Streambarker, represents the first practical application of this principle.

After many years of research and experimenting with the many problems involved, Allis-Chalmers engineers produced a machine to bark and clean pulpwood sticks in a process having many advantages.



ALLIS-CHALMERS LOG-BARKING MACHINE

The unit can process from 10 to 11 cords of pulpwood per hour, and the number of men needed to operate it constitutes the smallest force required by any machine of its type and capacity. In addition, the savings in good pulpwood resulting from the elimination of broom ends, unnecessary axe cuts, and knot boring help to make the operation exceedingly practical.

Simple, functional design, which characterizes the unit, has resulted in its being called the "Streambarker." It has large waterproof doors on each side of the outer frame for quick accessibility to the interior and is floodlighted from the inside so that logs can be observed while they pass through the machine.

With the first machine in daily operation for more than a year, the Streambarker is ready for application throughout the industry, according to Allis-Chalmers engineers.

Rumania Adds to Paper Mills

Rumania's paper industry experienced some difficulties in 1943 but owing to the successful processing of lumber mill waste was able to maintain production at almost the normal level, according to a report to the Department of Commerce.

Three new factories have been put into operation since 1940 bringing the total now to seventy-eight.

Average monthly production over the past few years has been fairly stable, ranging from four to five thousand tons per month for paper and practically static at one thousand tons for cardboard.

Walker Goulard Plehn Co. Celebrate

The Walker Goulard Plehn Company, mill distributor of paper and paper products, 450 Pearl street, New York, is observing its seventeenth anniversary this month. The concern acquired by purchase in 1926, the capital assets, stock and good will of the Maurice O'Meara Company, which was established in 1855.

The officials of the Walker Goulard Plehn Company were formerly associated with the Maurice O'Meara Company. David O'Meara, who was secretary of his father's company is chairman: Robert Plehn, vice-president, in charge of the specialty board division, joined the concern in 1904; Thomas Goulard, president, followed in 1905; Elwin Walker, treasurer, entered the organization in 1906, and Gustave Schneider, Jr., secretary, began his connection in 1919. Following the traditions of its predecessor, the Walker Goulard Plehn Company continues to do a very extensive business in all grades of fine and coarse papers, specialty boards, industrial papers and paper mill supplies, both in the domestic and exports fields. Since its organization, the company's growth has been steady. Prior to the war, over 100 persons were employed. At the present time 28 employees are serving in the armed forces. The sales staff consists of 52 men covering both the domestic and exports markets. In the recent Fourth Victory Loan drive, the company and its employees exceeded their quota by 50%. The concern carries group insurance and hospitalization benefits and has recently inaugurated a profit sharing plan for its employees. It is the post-war policy of the company to reemploy all its returning personnel who have served in the armed forces and to augment the sales force so far as possible by taking back returning service men.

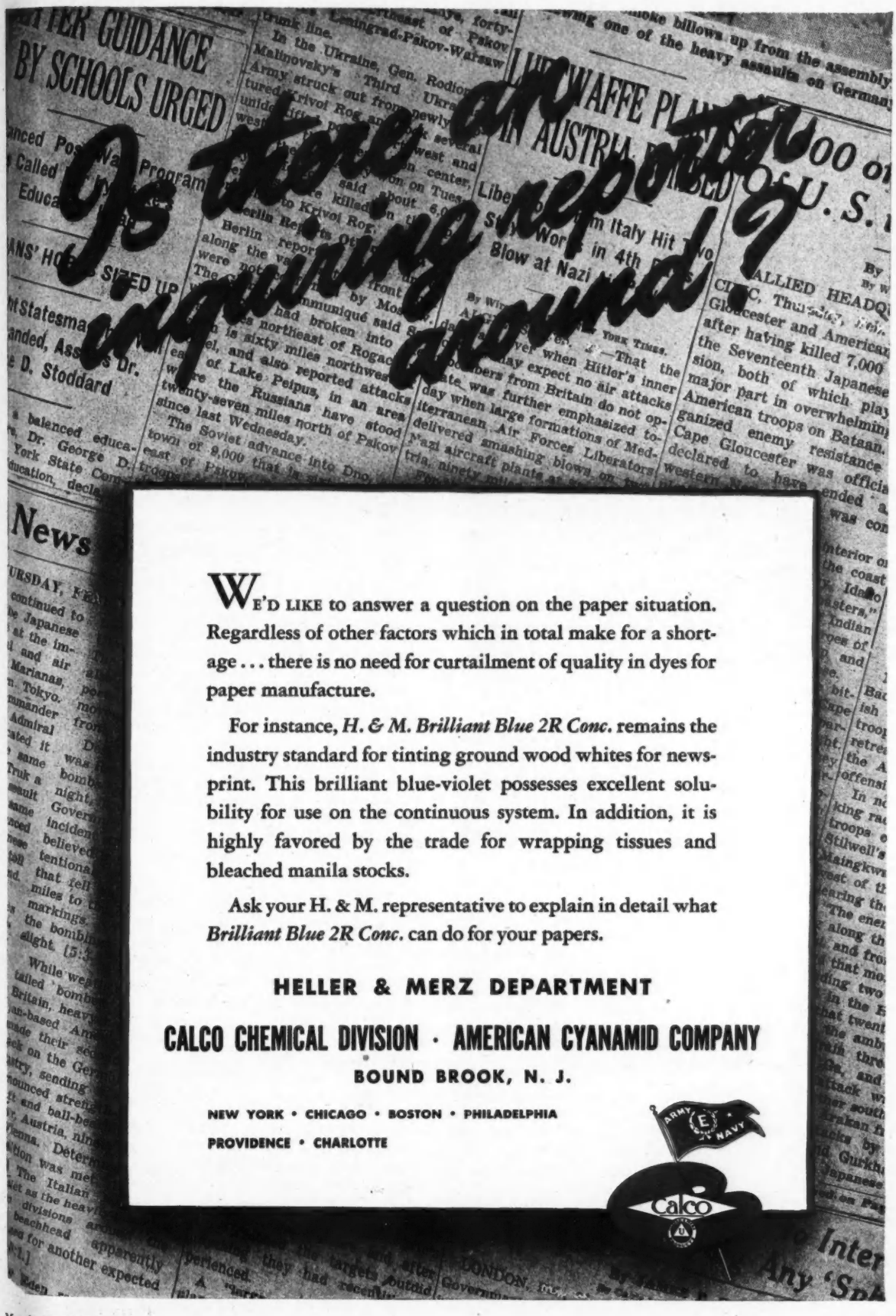
Carrying forward the sound tradition established by the late Mr. O'Meara, the Walker Goulard Plehn Company has as its slogan, "Be Fair to Your Trade and Mill Connections." Officials of the company are of the firm belief that the progressive growth of the company is proof of the wisdom of this policy.

Bill Highberger Gets Purple Heart

Second Lieutenant W. W. ("Bill") Highberger, 37, of the Chemical Warfare Service, U. S. Army, reported missing in action in the European theatre a year ago and now listed as lost in action, has been posthumously awarded the Order of the Purple Heart "for military merit and for wounds received in action." The decoration has been presented to his widow, Mrs. Dorothy F. Highberger.

With a background of many years of experience in the chemical field, Lieut. Highberger received his commission in September, 1942, while he was associated with the Mathieson Alkali Works. He underwent special training in chemical warfare at the Edgewood (Md.) Arsenal, and shortly thereafter was sent overseas in an administrative capacity, although the nature of his actual duties has never been revealed. He joined the Mathieson organization in March, 1932, as a sales representative and became a well-known and highly popular figure in the New York sales area.

Lieut. Highberger was a native of Greensburg, Pa., and graduated in 1927 from Lafayette College, where he was outstanding as a swimmer and a football player, having been mentioned for All-American honors in football.


Is there a report going around?
WE'D LIKE to answer a question on the paper situation. Regardless of other factors which in total make for a shortage . . . there is no need for curtailment of quality in dyes for paper manufacture.
For instance, H. & M. Brilliant Blue 2R Conc. remains the industry standard for tinting ground wood whites for newsprint. This brilliant blue-violet possesses excellent solubility for use on the continuous system. In addition, it is highly favored by the trade for wrapping tissues and bleached manila stocks.
Ask your H. & M. representative to explain in detail what Brilliant Blue 2R Conc. can do for your papers.
HELLER & MERZ DEPARTMENT
CALCO CHEMICAL DIVISION · AMERICAN CYANAMID COMPANY
BOUND BROOK, N. J.
NEW YORK · CHICAGO · BOSTON · PHILADELPHIA
PROVIDENCE · CHARLOTTE
ARMY NAVY
Calco

Empire State Section Meets

During the War period the Empire State Section is holding regional meetings to reduce train travel.

The Syracuse area group met on March 9 at the Hotel Yates, Syracuse, N. Y. Four Marine Corps reels were shown, following which W. K. Metcalf of the J. O. Ross Engineering Company, New York, N. Y., gave a talk on "The Use of Air in Paper Mills."

The Watertown area group met at the Woodruff Hotel, Syracuse, N. Y., on March 9. Fifty-five attended. R. W. Hynes, general manager of the Newton Falls Paper Company, talked on "Deinking of Waste Papers", and Noel Phillips of The Cowles Detergent Company, discussed the "History and Theory of Deinking." F. O. Sundrom of Heller & Merz, covered briefly the stripping of colored papers, and W. R. Benson of the National Paper Products Company, discussed ways of using waste paper to meet the woodpulp shortage. The next meeting will be on April 13 at Watertown. Those present included: W. J. Argy, Wilfred Arsenault, M. H. Bennett, W. R. Benson, F. J. Brown, Joseph Brown, Jr., E. W. Clarke, H. D. Cook, S. T. Dolan, Stanley Donaldson, George Duers, Howard Espenmiller, Philip S. Evans, W. W. Fitzgerald, Geo. E. Fromm, E. A. Godfrey, F. D. Goodwill, R. J. Hackett, Walter F. Harts, F. J. Hoar, H. A. Forstmann, T. Huttemann, Ronald W. Hynes, C. F. Jewell, C. B. Kinney, A. B. Lachy, Joseph A. Leek, F. E. Loessi, Joseph Martin, D. C. Mather, W. E. McIntyre, A. D. Merrill, Ed. Moncaliere, L. C. Nevin, M. I. Newcomb, George Pennock, Noel R. Phillips, R. G. Reeder, H. Remington, Homer M. Rice, John H. Rich, Warren Rossin, N. L. Sackett, Charles J. Slack, H. A. Spencer, J. R. Stebbins, F. O. Sundstrom, P. D. Switzer, Beau Thomas, B. H. Treadwell, W. E. Wanstall, N. B. Wardwell, Earl Zimmerman.

The Glens Falls area group met at Glens Falls, N. Y., on Friday evening, March 10. There was an attendance of forty-eight. Dwight Jones, of E. D. Jones & Sons, Pittsfield, Mass., discussed "Stock Preparation." Mr. Jones pointed out that the literature of the subject is relatively scant. Sigurd Smith's book, The Action of the Beater, published in 1922 being the only English text available that goes into any great deal on beating principles. The beater has the advantage of adaptability. It was first used on rags and adapted to woodpulp because of its availability. Its main disadvantages are inefficiency and batch processing. In 1856 the first disk refiner was developed by Kingsland. This preceded the jordan although the latter developed faster and has much wider usage. He showed some of the mechanical difficulties in each type. The refiners do not have uniform action on the stock whereas beaters function much better. The refiners are also likely to be more drastic since so much depends on the work done in one pass. In tests reported by the C.P.P.A. Technical Section, it was shown that beaters are as efficient in handling various types of stock and in doing various types of work as refiners. Mr. Jones expects great advancement in design of all types of stock preparation equipment due to the development of control instruments during the War. There will be more intensive study of the factors affecting stock refining such as ince-cuts, area of contact and pressure per square inch. There will be definite field developed for both continuous and batch machines.

Charles A. Frankenhoff Resigns

Charles A. Frankenhoff, chairman of the board of directors of the Dicalite Company, manufacturers and distributors of diatomaceous earth products, announces his resignation from these offices effective February 15, 1944. Mr. Frankenhoff organized the company and was its president and general manager for fourteen years, its entire period of operations to July 1943.

During his term as president, two new complete plants were built and put in operation for the production of filteraids, insulating materials, fillers, absorbents and pigments, and the use of diatomaceous earth products was extended throughout the world and in this country where the company maintains many offices.

In July Mr. Frankenhoff resigned as president, but continued his connection as chairman of the board and director. Prior to organizing the Dicalite Company, Mr. Frankenhoff was, for ten years, with the Celite Products Company; was Manager, Central Division, of that company, for several years, before it was purchased by the Johns-Manville Corporation in 1928.

Mr. Frankenhoff is temporarily making his headquarters at his home, 12 Southwoods Lane, Scarsdale, New York.

Morse Chain Issues Catalog

Designed to supply post war planners, design engineers, plant production men, and purchasing agents with the most recent and complete information on Morse silent chain drives, a new catalog, prepared by the Morse Chain Company, is now ready for distribution. Included in the new Morse catalog, in addition to the usual specifications and price lists, is entirely new material covering the advances and new developments made in the high-speed chain drives and other fields.

The newly compiled material includes a section on new and simplified methods of drive selection based on latest Morse practice in high-speed drive design, and a complete section of engineering data covering chain and sprocket construction together with a comprehensive list of stock drives based on a new, quick method of selection.

Another addition to the usual material is a more complete section on installation and maintenance.

Condensed data covering other Morse power transmission equipment, such as roller chains, flexible couplings and free-wheeling clutches, serves as a supplement included in the new catalog.

Copies of the catalog, which is numbered Bulletin 43, may be obtained by contacting the nearest Morse office or by writing direct to the Morse Chain Company, Ithaca, N. Y.

Fox Paper Co. Gets Second Award

CINCINNATI, Ohio, March 13, 1944—The men and women of the Fox Paper Company, Lockland plant, have just received a second Army and Navy Production Award.

Robert P. Patterson, Under Secretary of War, in advising the writer of this honor for the employees of the Lockland plant, referred to it as "the symbol of appreciation from our Armed Forces for your continued and determined effort and patriotism."

Check List OF MONSANTO PLASTICIZERS

. . . to help you make the most efficient use of available supplies!

With supplies of plasticizers short of wartime needs it is essential that the most efficient possible use be made of every available pound.

That's why it is suggested that you review the Monsanto plasticizers you are now using to make certain they are the best possible materials available for your needs.

A quick glance at this table of the principal Monsanto Plasticizers will give you a preliminary check. A letter will bring you the help of a Monsanto technical service representative in making a final decision. Write: MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, St. Louis, Missouri.

CHARACTERISTICS OF MONSANTO PLASTICIZERS

	Mol. Wt.	Color and Form	Boiling Point	Cryst. or Melt. Point	Sp. G.	Lbs. per Gal.	Refrac. Index	Evap. Rate Gms./sq.cm/hr/ 100°C	Solubility in Water	Retentivity in N/C	Retentivity in Ac/C	Light Fastness in N/C	Light Fastness in Ac/C	USES
Tricresyl Phosphate	368	Colorless liquid	295°C/13 mm	Non-cryst., solid at −35°C	1.165/20°C	9.7	1.556/20°C	0.00000708	Less than 0.002% at 85°C	100 plus	0	Poor	—	Excellent compatibility with most resins and plastics except cellulose acetate; imparts excellent flexibility with a minimum decrease in tensile strength; excellent fire retarding properties.
Triphenyl Phosphate	326	White flakes	245°C/11 mm	48.5°C	1.268/60°C	10.5	—	0.00000028	0.001% at 34°C 0.002% at 54°C	100	80	Poor	Fair	Standard fire retarding plasticizer especially for cellulose acetate; gives clear tough compositions of good flexibility without tackiness.
Santicizer 8	199	Light amber liquid	—	—	1.188/25°C	9.9	—	0.0002659	0.13% at 23°C 0.213% at 48°C	100	90	Poor	Good	Excellent plasticizer for cellulose acetate, giving brilliance and polish; valuable plasticizer for coating designed to withstand petroleum products; increases flexibility of shellac and protein plastics.
Santicizer 9	171	White granules	—	105°C	1.313/25°C	10.9	—	0.000053 at 65°C	1% at 34°C	25–30	25–30	Poor	—	Imparts gloss; gives smooth working and uniform curing of molded phenolic and urea resins; blends readily with most synthetic resins; does not impart softening action of liquid plasticizers.
Santicizer B-16	336	Colorless liquid	219°C/5 mm	Below −35°C	1.097/25°C	9.15	1.490/25°C	0.0000881	0.0012% at 30°C	100	20–30	Excellent	Excellent	With nitrocellulose, gives clear, brilliant films that are flexible, tough, moisture resistant and have good weathering qualities; solvent for and imparts plasticity to most synthetic resins. Non-toxic.
Santicizer E-15	280	Colorless liquid	190°C/5 mm	20°C	1.180/25°C	9.84	1.498/25°C	0.0001106	0.0175% at 30°C	100	100	Excellent	Excellent	With both acetyl and nitrocellulose, it gives clear, tough flexible films that have much increased resistance to moisture penetration. Non-toxic.
Santicizer M-17	266	Colorless liquid	189°C/5 mm	Below −35°C	1.220/25°C	10.2	1.504/25°C	0.000221	0.09% at 30°C	100	100	Excellent	Excellent.	Imparts high degree of permanent plasticity; excellent gasoline resistance. Non-toxic.
Dibutyl Phthalate	278	Colorless liquid	206°C/20 mm	−35°C	1.047/20°C	8.75	1.490/25°C	0.000221	0.001% at 30°C	100	Less than 20	Excellent	—	A standard lacquer plasticizer giving high degree of plasticity; excellent light stability and good weathering qualities.
Diethyl Phthalate	222	Colorless liquid	295°C	−0.3°C	1.123/20°C	9.35	1.503/20°C	0.000617	0.058% at 30°C	100	100	Excellent	Excellent	Generally used in mixture with Dimethyl Phthalate as a plasticizer for cellulose acetate.
Dimethyl Phthalate	194	Colorless liquid	282°C	0°C	1.196/15.6°C	10.0	1.515/20°C	0.001925	0.4% at 32°C 0.6% at 63°C	100	100	Excellent	Excellent	Standard cellulose acetate plasticizer generally used in mixtures with diethyl phthalate or other plasticizers.
Diphenyl Phthalate	318	White powder	—	69°C	1.28/25°C	10.68	1.572/74°C	—	Insol.	65	20	Poor	—	Compatible with nitrocellulose and with the sulfonamide, phenolic, polystyrene and vinyl types of resins; gives increased water resistance to all compositions in which it is used.

Army-Navy "E" Award

Tricresyl Phosphate and Triphenyl Phosphate have excellent Fire Retardation.

MONSANTO CHEMICALS

SERVING INDUSTRY...WHICH SERVES MANKIND

New TAPPI Members

The executive committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

John F. Campbell, plant director of development, the Flintkote Company, Meridian, Miss., a 1934 graduate of Louisiana State University.

John P. Conley, vice-president, Lukon, Inc., Whitney Street, Leominster, Mass.

Charles N. Egan, vice-president and general manager, Hennepin Paper Company, Little Falls, Minn., a 1933 graduate of the Sheffield Scientific School (Yale).

Russell F. Erickson, plant engineer, Hollingsworth & Whitney Company, Mobile, Alabama, a 1932 graduate of the University of Minnesota.

Edward H. Gross, Technical Representative, Bakelite Corporation, 30 East 42nd street, New York 17, N. Y., a graduate of the University of Virginia.

Paul L. Haggerty, in charge of laboratory and assistant to plant superintendent, George La Monte & Son, Nutley, N. J. Attended Stevens Institute of Technology.

P. S. Hewett, Research Chemist, Reichhold Chemicals, Inc., Detroit, Mich., a 1939 graduate of the University of Michigan.

Harold C. Hopp, in charge of Research and Development, Standard Cap and Seal Corporation, 1200 Fullerton avenue, Chicago, Ill., a 1928 graduate of Purdue University.

Eric T. Laurin, director of Textile and Pulp and Paper Service, Calgon, Inc., Hagan Bldg., Pittsburgh, Pa., a 1921 graduate of Lowell Textile Institute.

William D. Luker, Chemical Engineer, Union Bag and Paper Corp., Savannah, Georgia, a 1941 graduate of Louisiana State University.

Dr. Clinton W. MacMullen, technical director, The Cowles Detergent Company of Cleveland, Ohio, a 1935 graduate of the University of Minnesota.

Graham P. Prather, consulting engineer, 166 Carlton Terrace, Teaneck, New Jersey, a 1922 graduate of Syracuse College of Forestry.

Bernard A. Schroeder, chief chemist, United States Testing Company, Inc., 1415 Park Avenue, Hoboken, N. J., a 1936 graduate of Columbia University.

Alfred S. Walden, news editor and advertising manager, Walden Sons & Mott, Inc., 41 Park Row, New York 7, N. Y.

Harold R. Wheeler, Jr., paper mill chemist, Oswego Falls Corporation, Fulton, N. Y. Attended the University of Maine.

Robert E. L. Wheless, assistant chief chemist, Chesapeake-Camp Corporation, Franklin, Va., a 1937 graduate of North Carolina State College.

Herbert F. Woody, manager of decorating and printing department, Chillicothe Paper Company, Chillicothe, Ohio, a 1928 graduate of Linsly Institute of Technology.

TAPPI Notes

The next annual meeting of the Technical Association of the Pulp and Paper Industry will be held at the Commodore Hotel, New York, N. Y., on February 19 to 22, 1945.

H. R. Alley of Tested Papers of America, Inc., 230 N. Michigan avenue, Chicago, Ill., would be interested to know which members of TAPPI are members of Alpha Chi Sigma, the chemical fraternity. Members are requested to write to Mr. Alley so that plans may be developed to hold luncheons for this group at future national meetings of the Technical Association.

Herman W. Richter, 33 Clarence avenue, Bridgewater, Mass., would like to obtain copies of the TAPPI Bibliographies of Paper Making for 1938 and 1940. Anyone wishing to sell a copy of either publication should get in touch with Mr. Richter.

Elmer K. Stilbert is now a plastics engineer with the Dow Chemical Company, 2045 Locust Street, Philadelphia, Pa.

R. C. Williamson, formerly with Canadian Industries, Ltd., is acting manager with Aluminate Chemicals, Ltd., Toronto, Ont.

W. E. Rand, formerly with Dicalite Company, is now plant manager of the General Industries Finishes Division of General Printing Ink Company, North Bergen, N. J.

Owen D. Mosher, formerly with the Tanglefoot Co., is now chemist for the Gummed Products Company, Troy, Ohio.

John R. Lavigne, formerly of the New York State College of Forestry, is now chemist for Ansco Corporation, Binghamton, N. Y.

F. L. Simons, formerly of Geo. LaMonte & Sons, is now chemist for Crane & Co., Dalton, Mass.

W. Michael Cofnuk, formerly with the Calco Division, American Cyanamid Company, is now a paper inspector, Quartermaster Depot, Jersey City, N. J.

A. V. Alm, formerly with the Chemical Process Company, is now located at 225 Chapin Lane, Burlingame, Cal.

Plastics Laboratory Manual

John Wiley & Sons, Inc., have recently published an interesting Laboratory Manual of Plastics and Synthetic Resins by G. F. D'Alelio, research director of the Pho-Phy-Lac-Tic Brush Company and formerly director of the Plastic Laboratories of the General Electric Company. This is a wire hinged paper covered book of 134 pages. It was prepared essentially for universities to be used in a laboratory course in plastics. It is not an instruction book on manufacturing procedures but rather has been prepared to demonstrate certain chemical principles. Some of the equipment needed in the experiments is expensive. Practically all of the well-known resins and plastics can be prepared readily even in a small laboratory. There are 88 experiments outlined relating to production and 26 test methods.

Copies may be obtained from the book department of the Technical Association of the Pulp and Paper Industry at $2.00 per copy.

TO BUILD KRAFT PULP MILL

(Continued from page 11)

Company, at Eugene, Oregon, but has not yet been approved officially. It is planned to use sawdust and other waste wood products as raw materials.

According to Chemical and Metallurgical Engineering the sulphite digest and wash liquors which have to be disposed of by Canadian mills as waste, total around 250,000 tons annually. This would be equivalent to 35 million gallons of alcohol a year. On the same basis the U. S. could secure an alcohol output of 5 million gallons annually from its waste sulphite liquors.

Obituary

George Melville Wetmore

CHAPPAQUA, N. Y., March 13, 1944—George Melville Wetmore, who retired six months ago as sales manager for the Claremont Paper Company, of Claremont, N. H., was found dead Sunday afternoon with a bullet wound in his chest, in a cabin on the grounds of the Camp Fire Club of America near here. Dr. Amos O. Squire, Westchester County Medical Examiner, said that death was accidental.

Mr. Wetmore, who lived at 26 Elizabeth Road, New Rochelle, N. Y., and had been prominent in the work of the Boy Scouts in that city, came to the club Sunday morning with Hector Ettari, of New Rochelle, and went to his cabin with the announced intention of cleaning his collection of firearms.

Late Sunday afternoon, when Mr. Ettari prepared to start for home, he called at the cabin and found Mr. Wetmore on the floor near the door. A .45 caliber pistol he had been cleaning lay beside him.

Surviving are his wife, Mrs. Rebecca Riley Wetmore; a daughter, Virginia B. Wetmore; a son, William S. Wetmore, of New Rochelle, and two sisters, Miss Marguerite L. Wetmore, of New Rochelle, and Mrs. Karl H. Ways, of Newtonville, Mass.

Murray M. Rubin

The death of Murray M. Rubin, technical director of the American Tissue Mills, South Hadley Falls, Mass., has been reported. Mr. Rubin was born in New York City in 1902 and graduated in chemistry from Harvard University in 1925. From 1925 to 1928 he was engaged in consulting practice in chemistry and microbiology in Springfield, Mass. From 1928-1930 he was chemist for the Chemical Paper Manufacturing Company in Holyoke, Mass., and from 1930-1938 was with Fraser Companies, Ltd., Madawaska, Maine. This was followed by a period of consulting practice in Springfield and in 1940 he became technical director of the Mohawk Paper Mills, Cohoes, N. Y. In 1943 he joined the American Tissue Mills. He published a number of articles in the trade papers and was active in the work of the Technical Association of the Pulp and Paper Industry. He was a member of the Harvard Club and is survived by his father and three brothers.

BUILT IN A COMPLETE SELECTION OF FILLINGS IN ALL SIZES TO MEET THE INDIVIDUAL FINISHING DEMANDS OF EACH SUPER-CALENDER APPLICATION

Eastern Sales Agents—CASTLE & OVERTON, Inc.
630 Fifth Avenue, New York

Herbert Taylor Kehew

DANSVILLE, N. Y., March 13, 1944—Herbert Taylor Kehew, treasurer of the Berwin Paper Company, died March 3 in the Highland Hospital at Rochester where he had been a patient for several weeks. Mr. Kehew came to Dansville on December 1, 1916, when the Carso Paper Company was organized. Since that time he has been actively engaged in community affairs as well as giving careful attention to his many business interests.

Born in Pittsburgh, Pa., August 10, 1866, he received a public school education and when 18 years of age he obtained work in one of the large steel mills in Pittsburgh. In Dansville Mr. Kehew has long been identified with the Board of Trade. He was a charter member and past president of the Dansville Rotary Club, a member of Phoenix Lodge 115 F.&A.M., Dansville Chapter 91 Royal Arch Masons, the Union Hose, Pittsburgh Athletic Association, the Chemists Club of New York City, and the Asbury Methodist Episcopal Church of Pittsburgh.

Awards for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 15, 1944—The Mead Sales Company has been awarded the contract for furnishing the Government Printing Office with 39,000 pounds of M.F. book paper at 8.13 cents. Other paper awards announced include the following.

Great Northern Paper Company will furnish 100 tons of newsprint at $58.50 per ton. The same firm will also furnish 167 tons at the same price and 167 tons and 166 tons all at the same prices.

Walker, Goulard Plehn Company will furnish 149,990 pounds of groundwood offset paper at 7.15 cents and the Stanford Paper Company will furnish 200,000 pounds of white offset book paper at 7.56 cents and 21,800 sheets of Blue press board will be furnished by the New York & Pennsylvania Company at 8.33 per sheet.

Barton, Duer & Koch Paper Company will furnish 24,450 pounds of white ledger paper at 20.55 cents, and the same firm will also furnish 63,000 pounds of buff wood bristol board at 6.25 cents.

The Stanford Paper Company will furnish 14,637 pounds of Warren's text paper at 14.65 cents and the Paper Corp. of U. S. will furnish 43,100 pounds of 50% rag, salmon index paper at 14.35 cents. Stanford Paper Company will furnish 187,500 pounds of 25% rag white bond paper at 15.18 cents and the same firm will also furnish 187,500 pounds of same at 15.76 cents and 324,000 pounds of same at 15.36 cents.

Bulkley, Dunton & Co. will furnish 33,600 pounds of cream antique book paper at 18.7 cents and D. L. Ward Company will furnish 91,000 pounds of canary duplicator paper at 8.62 cents. The same firm will also furnish 22,000 pounds of white duplicator paper at 8.62 cents. D. L. Ward Company will furnish 24,000 pounds of salmon duplicator paper at $2,244 and Barton, Duer & Koch Paper Company will furnish 11,700 pounds of 100% rag white ledger paper at 20.85 cents.

Wilcox Walter Furlong Company will furnish 77,000 pounds of 50% rag antique book paper at 14.44 cents and the Marquette Paper Corp. will furnish 102,000 pounds of white M.F. book paper at 7.42 cents. R. P. Andrews Paper Company will furnish 5,200 sheets of white antique cover paper at $413.97 and 1,565 pounds of white offset book paper at 10.78 cents. Barton, Duer & Koch Paper Company will furnish 324,000 pounds of 25% rag white bond paper at 14.19 cents and the Mead Sales Company will furnish 168,000 pounds of machine coated book paper at $6.79 per cwt. The Marquette Paper Company will furnish 53,200 pounds of white chemical wood mimeograph paper at 7.27 cents.

January Pulpwood Receipts

The War Activities Committee of the Pulpwood Consuming Industries reports that January mill receipts of domestic pulpwood showed some improvement despite bad weather and consequent slow-downs in deliveries in the South.

Total receipts of domestic pulpwood for the first month of 1944 were 1,216,128 cords. This figure was higher than the 1,186,000 cords taken in by the mills in December and higher than receipts in January, a year ago, and in 1941. It was slightly under receipts in January, 1942.

Depleted inventories, however, in the face of wartime demands continued to make the pulpwood production problem critical, the War Activities Committee said. Unless mills are able to build up larger inventories during good seasonal production months, they will be caught short and may be forced to close when receipts taper off because of seasonal factors. The War Production Board has set a goal of 14,000,000 cords of domestic pulpwood for 1944.

A substantial improvement in mill receipts was reported for January by mills in the Lake states, largely because of extremely favorable logging weather.

Region	*January 1944*	*December*	*January 1943*
Appalachian	104,032	137,000	79,000
Northeast	158,089	105,000	162,000
Lake States	293,190	175,000	145,000
South	477,980	571,000	473,000
Pacific Northwest	182,837	198,000	140,000
Total U. S.	1,216,128	1,186,000	999,000

Imports of pulpwood from Canada totaled 123,099 cords and brought the over-all total of mill receipts for January to 1,339,227. Imports by regions were: Northeast, 84,510; Lake States, 31,826; Pacific Northwest, 6,763. No imports were reported for the South and Appalachian region.

REQUIRES SO LITTLE MAINTENANCE

Worm gear speed reduction in electric hoists, a feature introduced and pioneered by Reading Electric Hoists, cuts maintenance to the bone because there are fewer wearing parts. In addition the hoisting unit proper is compact and very simple with only four moving parts. The unit construction of Reading Hoists makes all parts easily accessible for inspection and maintenance by the average mechanic.

It will pay you to investigate the money-saving features of Reading Electric Hoists. For full technical information write for Bulletin 1004.

READING CHAIN HOISTS · ELECTRIC HOISTS OVERHEAD TRAVELING CRANES

READING CHAIN & BLOCK CORPORATION 2113 ADAMS ST., READING, PA.

U. S. Salvages Paper

More than 74,000 tons of waste paper, obsolete records and printed matter were salvaged by the armed services and Government agencies during the last six months of 1943, at a cash recovery to the Government of almost $1,200,000, the Budget Bureau and the WPB have reported.

Leading the paper salvage were the War Department, with an estimated 45,000 tons; the Procurement Division of the Treasury Department, 12,893 tons, and the Navy Department, 9500 tons.

Coincident with the report, the Budget Bureau issued instructions to its examiners to see that all saveable Government paper is turned in for salvage. Only records and documents of "extreme secrecy" are to be burned; those less confidential are to be sold after being shredded or pulped, and all others are to be sold as waste paper, the bureau said.

Large quantities of obsolete booklets, pamphlets, periodicals, posters, unused forms and other surplus materials, now in Government storage, are to be released to sale as waste paper, the bureau instructed.

Less Rigid Control of Cups

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 15, 1944 — Rigid control of paper cup manufacture and distribution appears unnecessary today because of a definite improvement in the pulp and paper situation during the past two weeks, members of the Paper Cup Industry Advisory Committee decided at a recent meeting, the War Production Board reported today.

WPB officials, however, were not in complete agreement. Exact knowledge of the present paper problem depends chiefly on the availability of pulp, officials said, and will not be complete until the pulp allocations for the second quarter have been made. It was agreed that a conservation order should be prepared so that WPB could adjust demand with supply in line with the pulp allocation.

Several means for reducing the industry's consumption of paper-cup stock, in the event developments made such a step necessary, were discussed. The committee agreed that the only practical way to provide for the minimum essential requirements of the military services was to adopt the general policy of setting aside a definite percentage of the monthly production on both hot-drink cups and flat-bottom cold-drink cups for the Army and Navy.

This peddler was a wise guy —
you know the kind we mean,
Been everywhere, done everything, there's naught
he hasn't seen.
It's not enough to sell the stuff; an expert he must be.
He climbed up on a catwalk, a defective wire to see.
"Hey, wait!" the super shouted, but the peddler waved his hand.
"It's child's play. Fourdrinier machines are things I understand."
So up he went, and as he bent, the dandy to admire,
He dropped a pencil through *eight hundred dollars' worth of wire.*

That's no way to treat a wire . . . especially in wartime. Even Cheney Bigelow wires can't take punishment like that. Keep the peddlers under control, and you'll find that Cheney Bigelow wires deliver all the fine service you've come to expect of them; for we're keeping our skilled wire craftsmen on the job . . . giving you their *best*, as always.

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PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.
Henry J. Berger
EDITOR

Vol. 118 March 16, 1944 No. 11

COMING EVENTS IN PAPER INDUSTRY

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

CHICAGO PROFESSIONAL PAPER GROUP—First Monday of each month except July and August at Chicago, Ill.

PRODUCT DEVELOPMENT

Research in all major industries has been vastly accelerated to meet the enormous demands of the war. A very large proportion of this scientific inquiry, experiment and perfectment has been conducted by private enterprise in fields not commonly considered within the scope of their activities. Paper manufacturers are utilizing their machine shop facilities to produce a diversity of essential small parts which are assembled with other component parts in another plant to form complete units required in the war. A food manufacturer utilizes its facilities for making food packaging machinery to turn out delicate precision instruments vitally needed in the war. There are thousands of such examples, for American ingenuity has no arbitrary limitations and scientific research can be and is being applied to a very wide variety of problems. These problems are being successfully solved continuously and the result, while now hidden in the war effort, will on Victory Day be available to advance the standard of living to higher and higher levels. Through research, new inventions, processes and new materials are now being created for the peacetime era of the future.

Research to develop new products will play a vital part in American post-war prosperity, according to a report issued last week by a committee on product development of the National Association of Manufacturers. "From it will come new industries which will raise living standards and expand employment opportunities for workers released from the armed services and war production", said David C. Prince, vice-president of the General Electric Company, chairman of the committee. "Scientists say that more progress is being made in the application of science during a few war years than would normally take place in a quarter of a century", the report declares. The report, following a year's study of the factors involved, is published as a "Guide to Post-War Product Development", for manufacturing companies and is the third in a series of five on post-war subjects, the others being on Internal Organization, Sales Planning, Cost Study, and Corporate Financial Planning.

Members of the committee, besides Mr. Prince, includes Othom M. E. Loupart, executive vice-president of the North American Philips Co., Dobbs Ferry, N. Y.; Dr. A. R. Olpin, director of the Research Foundation of Ohio State University, Columbus, Ohio; L. E. Wilson, president of the Everite Pump and Manufacturing Company, Lancaster, Pa., and H. T. Winner, president of the Winner Manufacturing Company, Trenton, N. J. The report further states: "When wartime restrictions are released so that there is an opportunity for normal competition, new scientific and technological developments will appear in peacetime products faster than ever before. The company which does not take advantage of these opportunities is likely to fall behind in the march of progress. New materials, including many plastics, improved light metals, new wood products and new fabrics, will be available in greater quantity and at lower prices than formerly. Machine tools have been so greatly improved that many pre-war products will be considered crude by new standards to which industry has become accustomed. Furthermore, there are more skilled workers capable of fine workmanship as a result of precision experience on high quality war products, and there are also more practical engineers and scientists."

Indicating the possibilities of such research, the report cites several concerns whose business just before the war showed strikingly the importance of new products developed in the preceding ten years or less. One important citation was that of a leading paper manufacturer which has discovered uses for its waste materials in making plastic items which promise volume in the byproduct greater than in its old activity. Practical factors to be considered by a manufacturer in establishing or extending research for new products are summarized in the report. They cover research in his own plant or laboratory, by a university or research foundation, a private research laboratory or a trade association or other group project. Suggestions are based on the experience of many concerns in acquiring new products by purchase or patent license, analysis of sales possibilities, subcontracting for manufacture of parts and for additional marketing, protection against patent infringements and improvement of present products, ingredients and packaging.

In relation to new products the report states in part: "There is no magic about new product development, though new products can be highly dramatized.

It is the result of the enterprise and initiative of individuals who seek profits by starting new projects or expanding old ones." Commenting on the report, Norman W. Wilson, chairman of the Corporation Peace-Time Planning Committee of the National Association of Manufacturers, said in a foreword: "Coupled with the efforts of management to develop new products must be favorable national policies which encourage inventors to conceive-new products, investors to invest in their development and manufacturers to produce them."

Mill Manager Defends Unions

C. E. Jackson, mill manager of the Consolidated Water Power and Paper Company, Wisconsin Rapids, a defender of trade unions and the union shop, expressed in part his views in a recent interview.

"I would never attempt to conduct any manufacturing enterprise unless the plant were unionized and, further, unless it were a union shop. Our success here has convinced me that there is no other sensible way for a company to operate," Mr. Jackson said.

Consolidated employs about 1,100 persons at its main mill in Wisconsin Rapids. Its other mills—at Biron, Wis., 350 employes; at Stevens Point, Wis., 125, and at Appleton, Wis., 200—also have the union shop. The unions are the International Brotherhood of Papermakers, International Brotherhood of Electrical Workers, International Association of Machinists, and International Brotherhood of Pulp, Sulphite and Paper Mill Workers, all of them AFL.

The company, which is headed by George W. Mead as president, frequently has been cited as an example of successful collective bargaining.

"The essential point is that in our case capital and labor are making a sincere effort to manage jointly. We have been accused many times of allowing ourselves to be ruled by unionism. None of our men would ever substantiate this. I feel they are in perfect accord with the belief that neither side should be weak. Men and women in our employ know that their jobs are secure. We adhere to a rigid seniority system and no employe needs to fear that some other worker is conniving to climb over him. It simply couldn't work that way."

Enzyme Technology

Enzyme Technology by Henry Tauber is the title of a new book published by John Wiley & Sons, Inc. (275 pp.). Although this book does not relate specifically to the paper industry there are many technologists in the industry and in the starch industry serving the paper mills who will be interested in a book of this kind that reports the science of enzyme chemistry as it is applied to industrial processes. There is a need for technical men in any industry to survey other fields for ideas that can be used in their own industries. This book deals with such subjects as yeast production and utilization, ethyl alcohol fermentation, bacterial fermentations, enzymes in sewage disposal and textiles.

Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd street, New York City, at $3.50 per copy.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1944		Corresponding Weeks—1943	
January 29	89.2	January 30	87.1
February 5	90.9	February 6	87.2
February 12	89.6	February 13	88.4
February 19	91.2	February 20	89.0
February 26	89.2	February 27	91.0
March 4	*88.7*	March 6	89.7

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1943	87.2	88.9	89.5	88.7	91.4	84.8	84.3
1944	90.1	*90.6*	...	...	...	...	...

Year	Aug.	Sept.	Oct	Nov.	Dec.	Year Avg.
1943	91.0	88.3	89.6	89.6	82.0	87.8

COMPARATIVE YEARLY SUMMARIES

	1937	1938	1939	1940	1941	1942	1943	1944
Year to Date..	89.4	65.8	78.1	87.8	87.4	104.2	88.0	*90.2*
Year Average .	79.8	71.5	83.4	85.6	97.4	90.4	87.8	...

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1938	56	63	63	60	60	59	59	69	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	82	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	95	82	72	68	75	76	81	82	77	84
1943	86	88	94	94	96	94	89	96	94	94	93	87	93
1944	90	*96*	...	...	...	...	...	...	...	...	...	...	...

Week ending Jan. 29, 1944—95
Week ending. Feb. 5, 1944—97
Week ending Feb. 12, 1944—97
Week ending Feb. 19, 1944—96
Week ending Feb. 26, 1944—93
Week ending Mar. 4, 1944—*95*

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

Lt. Loudenslager Awarded Medal

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., March 14, 1944—Lt. Robert E. Loudenslager of 4706 Woodland Avenue, Drexel Hill, has been awarded the Legion of Merit by General Douglas MacArthur, commander in chief of the Southwest Pacific Area. The award was made for exceptionally meritorious conduct in the performance of outstanding services in Australia. Lt. Loudenslager, who is a member of the Engineer Corps, directed the assembly of disassembled landing craft, which was a task never before attempted by the Army. In advance of his battalion he selected the site for the boat assembly and expedited the extensive construction program, organizing it on a 24 hour basis. The installation construction program completed, he reorganized his men for boat assembly work and set up a depot for rapid delivery of parts and organized lines. A large number of landing craft was constructed under his supervision.

Previous to entering the Army, Lt. Loudenslager was a member of the sales organization of the Garrett-Buchanan Company, dealers in paper and twine at 12 to 20 S. Sixth street, Philadelphia, with which concern he had been for many years. He received the usual training in the various departments of the company until has ability warranted the company in making him a department manager. From there he was sent out in the field traveling in northern Pennsylvania.

American Exports Elects Officers

American Paper Exports, Inc. 75 West Street, New York, elected the following officers:—Daniel F. McIntosh, Chairman of the Board; Irving C. Baldwin, president; Abraham Levin, vice president; Roland A. Wood, secretary-treasurer; John J. Allan, assistant treasurer.

Are Your Fine Papers Getting the Right "VITAMINS"?

TITANOX pigments are to fine paper stocks what vitamins are to the human system. As vitamins make up for deficiencies in the body and help it resist disease, so TITANOX pigments build opacity, whiteness and brightness into paper and minimize show-through even in light weight stocks, eliminate after-yellowing, give fine printing surfaces and in no way impair the strength of the paper.

Only titanium pigments, of which TITANOX is the oldest and most widely used, can give all these benefits. In addition, because TITANOX pigments are on the blue-white side they give extra visual brightness within permissible limits.

TITANOX pigments are giving outstanding help in the building of satisfactory wartime papers. They are worth investigating.

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OF THE PULP & PAPER INDUSTRY
122 E. 42nd St., New York 17, N. Y.
Edited by R. G. Macdonald, Secretary

Sodium Peroxide Bleaching of Mechanical Pulps*

General Description of the Process

By J. S. Reichert[1]

Abstract

In connection with postwar planning in the pulp and paper industry, a considerable interest has developed in the sodium peroxide process for bleaching mechanical pulps. This process is still in the development stage and the status report given in this paper should be considered as preliminary in nature and indicative of trends. The outlook on the availability of sodium peroxide for pulp bleaching is not favorable for the duration.

Development work on the sodium peroxide bleaching of mechanical pulps has shown that substantial increases in pulp brightness are obtainable with practically no weight loss at a cost well within economic limits. The bleached pulp retains most of the desirable characteristics of unbleached groundwood and some valuable new properties are developed in the bleaching treatment.

The process consists essentially of three steps: (1) rapid and thorough mixing of the sodium peroxide bleaching solution with the pulp in controlled proportions, (2) storing the treated pulp long enough to permit the bleaching to go to completion, and (3) mixing the bleached pulp with a neutralizing and reducing agent.

This paper includes a description of typical equipment (design, structural materials, and layout), chemicals, operations, yields, chemical costs, control tests, and effects of variables.

Mechanical pulps have desirable characteristics for producing papers in which good bulk, high opacity, good printing properties, and low costs are of commercial importance. The properties of mechanical pulp which have tended to restrict its use in the manufacture of the higher grade papers are low brightness and deterioration on aging and on exposure to heat or light. Mechanical pulps bleached with sodium peroxide are appreciably brighter and more stable than unbleached groundwood.

This paper presents a status report on the development of the sodium peroxide process for bleaching mechanical pulps.

*Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Hotel Commodore, New York, N. Y., February 14-17, 1944.

[1]Manager, Peroxygen Products Development, Electrochemicals Department, E. I. duPont de Nemours & Co. (Inc.), Niagara Falls, N. Y.

Historical

The published literature on the peroxide bleaching of mechanical pulps is not extensive. The earliest reference found was a German patent (*5*) issued in 1905; a corresponding U. S. patent (*6*) was issued in 1907; the process disclosed in these patents is multistage and includes bleaching with sodium peroxide and chlorine. Robinson (*13*), in a U. S. patent issued in 1927, describes a treatment of mechanical pulps with sodium peroxide for the purpose of achieving a more complete separation of the fibers and the formation of a stronger, tougher, cleaner, and more uniform paper. Curran, Schafer, and Pew (*4*), in a paper presented at the TAPPI meeting in 1934, reported the results of studies on groundwood bleaching at the Forest Products Laboratory. Their investigations included both oxidizing agents and reducing agents. They found the oxidizing agents, particularly alkaline peroxide, more effective than the reducing agents for bleaching mechanical pulps. Heritage (*7*), in a U. S. patent issued in 1938, describes a rapid, high temperature bleach with hydrogen peroxide made alkaline with sodium silicate; he reports a marked increase in brightness and also a material increase in color permanence with less fading on exposure to heat and light. Kauffmann (*8*) in a U. S. patent issued in 1939, describes a process for the peroxide bleaching of wood pulps at high consistencies. Craig (*3*), in a U. S. patent issued in 1940, describes a two-stage groundwood bleaching process, first with alkaline peroxide and then with sulphurous acid or an acid sulphite. Other U. S. patents (*11, 12*) refer to the sodium peroxide bleaching of mechanical pulps under controlled conditions of temperature and alkalinity. A publication by the National Bureau of Standards (*14*) in 1942 reports an improvement in the stability of groundwood to light due to bleaching with sodium peroxide. At a meeting of the Empire State Section of TAPPI in 1943, Beeman (*1*) presented a paper describing briefly the sodium peroxide bleaching of mechanical pulps, the properties of the bleached pulps, and the applications of the bleached pulps in paper manufacture.

Current research and development work on the sodium peroxide bleaching of wood pulps originated with a project sponsored by the company at the In-

stitute of Paper Chemistry. The investigational work started at the Institute was subsequently extended by the technical staff at Niagara Falls. Interesting leads developed in the laboratory were discussed with representatives of the pulp and paper industry and a considerable amount of research work has been carried out in the laboratories of pulp and paper firms. The laboratory studies were followed by experimental runs in improvised equipment in a number of mills. The process is now in operation on a limited scale in several mills in the most suitable equipment available under existing conditions.

For the past two years activities on this project have been curtailed for work on more important war problems. Technical personnel and chemical supplies have not been available for proceeding with this development at a normal peacetime rate. It is not likely that these conditions will show a substantial change for the duration. However, in view of the interest which has developed in the process in connection with post war planning in the pulp and paper industry the Mechanical Pulping Section of TAPPI considered it timely to present a status report on the development at this meeting.

Description of the Process

The sodium peroxide process for bleaching mechanical pulps includes the following steps:

1. Rapid and thorough mixing of the sodium peroxide bleaching solution with the pulp slurry in controlled proportions.
2. Storing the treated pulp long enough to permit the bleaching to go to completion.
3. Thorough mixing of the bleached pulp with a neutralizing and reducing agent, preferably sulphite cooking acid.

Chemicals

The chemicals used in the bleaching process are sodium peroxide, sodium silicate, sulphuric acid, magnesium sulphate, and sulphite cooking acid.

Sodium Peroxide

This chemical, marketed by du Pont under the trade name "Solozone" DFF, is a dustless, free-flowing, pale yellow, granular solid. It is an alkaline bleaching agent containing 20% active oxygen, stable at ordinary temperatures when kept dry in airtight containers. With proper technique it can be dissolved in water with little or no loss of active oxygen. It is supplied in 75 pound pails and 400 pound drums; devices are available for convenient and safe handling of peroxide in the mill.

Sodium peroxide is the active bleaching agent in the process. Although the complex chemical reactions involved in the bleaching action are not completely understood, the primary reaction is probably a selective oxidation and decolorization of the organic coloring matter naturally present in the wood. The amount of sodium peroxide used in the bleaching process may be varied to produce the desired degree of bleaching. The most practical range appears to be 1.25 to 2.0% with resulting brightness increases in the range of 7 to 11 G.E. units.

Sodium Silicate

For use in this process sodium silicate should be clear, water white, and free as possible from metal impurities. Since sodium peroxide and sodium silicate together supply more than the amount of alkali required for the process, the value of the silicate lies in its SiO_2 content rather than in its Na_2O content. A 41.5° Bé silicate containing 29.0% SiO_2 and 8.9% Na_2O is satisfactory. Other silicates may be used, provided the proper modifications are made in the proportions of chemicals in the bleaching solution. Liquid silicates are commercially available in 55 gallon drums and in tank car lots.

Sodium silicate has the properties of a detergent and a penetrant. It buffers the bleaching solution and aids in maintaining the pH in the desired range. It forms a protective coating on the surface of metals and inhibits corrosion of equipment. It also has a stabilizing action on peroxide solutions under the conditions which prevail in the bleaching process. The amount of the 41.5° Bé silicate used in the bleaching process is in the range of 4.0 to 5.0%.

Sulphuric Acid

A clear, colorless grade of 66° Bé acid is preferred; this chemical is shipped in 200 pound glass carboys and in tank car lots.

For good bleaching results the total alkali content of the bleach liquor must be controlled within rather close limits. Sodium peroxide is basically a combination of anhydrous caustic soda and active oxygen. Part of the alkali introduced into the bleach liquor as sodium peroxide must be neutralized with sulphuric acid. The amount of sulphuric acid used in the bleaching process varies with the percentage of sodium peroxide used and with the pulp consistency. With 2% sodium peroxide and a pulp consistency of 5%, the preferred amount of sulphuric acid is 1.7% of the weight of the pulp.

Magnesium Sulphate

This white, crystalline solid (Epsom salt) is available in 350 pound barrels, 100 pound bags, and in 25, 50, and 125 pound kegs.

Magnesium sulphate has a remarkable stabilizing affect on alkaline peroxide solutions under the conditions which prevail in the bleaching process. It performs this function by inhibiting the catalytic effects of the traces of metals, particularly iron, copper, and manganese, which are commonly present in pulp wood and in mill waters. The stabilizing effect is obtained with very small amounts of magnesium sulphate, e.g., 5 pounds per 2500 gallons of bleaching solution.

Neutralizing and Reducing Agent

The most convenient and economic material for use in the neutralizing and reducing treatment in the final stage of the process is sulphite cooking acid. This is particularly true in mills which produce both groundwood and sulphite pulp. The sulphite cooking acid should be free from dirt and sludge; it is desirable to remove any colored solids from the sulphite cooking acid with a small sand filter.

In case sulphite cooking acid is not available, other reducing agents may be used. Sodium bisulphite or sodium metabisulphite will both function satisfactorily as the reducing agent, but when a bisulphite is used it is necessary to use larger quantities of an acidic material such as sulphuric acid or alum for lowering the pH to the desired value.

Sulphite cooking acid has several desirable effects in the final stage treatment of the bleached pulp. It neutralizes the small amount of alkali remaining in the pulp at the end of the sodium peroxide bleaching step and lowers the pH of the pulp to the desired value. It reduces to the colorless ferrous form the traces of highly colored ferric iron normally present in the bleached pulp. It also destroys the trace of

peroxide remaining in the pulp and prevents the development of a pink color which frequently results when unbleached sulphite pulp is mixed in the beater with bleached groundwood containing traces of residual peroxide.

Safety Considerations

Sodium peroxide is an active oxidizing agent and *in the dry state* must not be allowed to come in contact with oxidizable materials such as organic matter in the form of pulp, sawdust, starch, cloth, etc. It should be stored in the original containers in a dry, fireproof location, away from all flammable and combustible materials. In case the container is not all used at one time the partially emptied container should be kept tightly covered; when emptying a container the chemical should be removed completely. Sodium peroxide accidentally spilled should be covered with liberal quantities of soda ash and flushed down the sewer. In case flushing is impractical, the mixture of peroxide and soda ash should be shoveled into a pail, dissolved in water, and poured down the sewer. Goggles and rubber gloves should be worn by operators when sodium peroxide, sodium silicate, sulphuric acid, or solutions of these compounds are handled. If these chemicals come in contact with the skin, they should be washed off with large quantities of water.

Equipment

In the selection of tanks, pumps, mixers, agitators, and control devices for operating the process, the existing equipment, and the floor plan in each specific mill must receive consideration. The layout of equipment presented in this paper is illustrative; alternative types of installations may be expected to give satisfactory results as long as the essential factors in the process are given due consideration. It should be emphasized that the process is still in the development stage and therefore improvements in equipment and operation are to be expected.

The diagrammatic layout of equipment shown in Fig. 1 is typical for operating a triple bleaching tank system at a rate of about 1 ton of pulp per hour; Fig. 2 shows a similar layout for operating a single bleaching tower system. The equipment shown in Fig. 1 is as follows:

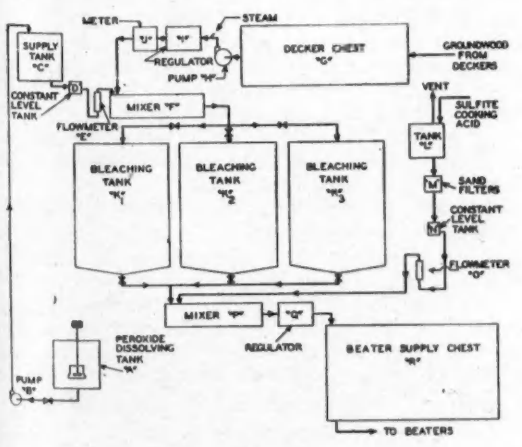

FIG. 1
Sodium Peroxide Bleaching of Mechanical Pulps—Triple Bleaching Tank System

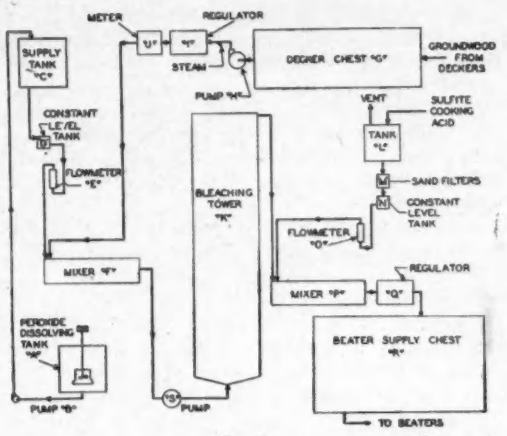

FIG. 2
Sodium Peroxide Bleaching of Mechanical Pulps—Single Bleaching Tower System

TRIPLE BLEACHING TANK SYSTEM (See Fig. 1)

Tank A for preparing the bleaching solution is a 3000 gallon cylindrical, tile-lined concrete, or rubber-lined steel, or wooden (cypress or yellow pine) tank, equipped with a stainless steel (or ordinary steel spray-coated with stainless) agitator and a stainless steel or glazed tile draft tube to provide violent churning. A stainless steel outlet nipple and a stainless steel pipe and valve (or rubber hose with clamp) lead to pump B.

Pump B for transferring the bleaching solution from dissolving tank A to supply tank C should preferably be of stainless, spray-coated stainless, or rubber-lined steel. An iron pump will give fair service. Stainless steel pipe or rubber hose lead to supply tank C.

Supply tank C for bleaching solution is similar to tank A with stainless steel pipe and valve (or rubber hose with clamp valve) leading to constant level tank D.

Constant level tank D is a 100-gallon stainless steel or wooden (cypress or yellow pine) tank equipped with a stainless steel float valve on the inlet pipe, adjustable to vary the flow of bleaching solution into mixer F.

Flowmeter E should preferably be the recording and controlling type. With a controlling type of flowmeter the constant level tank D may be omitted.

Mixer F is a heavy duty, wood, rubber-lined, or stainless steel mixer which will mix the bleach liquor with the pulp *rapidly* and *completely*.

Decker chest G is the conventional type with the bottom designed for complete drainage of stock at 5.5+% consistency.

Pump H should be suitable for handling groundwood at 5.5+% consistency.

Regulator I may be any conventional type which will deliver the pulp at a constant consistency and rate through meter J to mixer F.

Pulp meter J is any conventional (preferably rate recording) meter which will provide an accurate measure of the amount of pulp delivered to mixer F.

Bleaching tanks K_1 - K_2 - K_3 are cylindrical tile-lined concrete or wooden tanks with a capacity of 6.6 tons of pulp (moisture-free basis) at 5% consistency. They are supplied with lines and valves to permit filling, standing, and emptying in rotation. Conical bottoms permit complete emptying.

Supply tank L for sulphite cooking acid is a 1200 gallon lead-lined cylindrical tank, covered and vented to the roof, and equipped with a lead outlet pipe to filter M.

Sand filters M comprise a small twin set of conventional type sand filters to remove any colored sludge from sulphite cooking acid. They should be of lead construction and equipped for back washing with water.

Constant level tank N is similar to D.

Flowmeter O is similar to E.

Mixer P is similar to F.

Regulator Q is similar to I.

Beater Chest R is the conventional type with bottom designed for complete drainage. Agitation is desirable to prevent stratification and to supply pulp to beaters at a constant consistency.

SINGLE BLEACHING TOWER SYSTEM (See Fig. 2)

This system is the same as the triple bleaching tank system with the exception of the following items:

Bleaching tower K is a tile-lined concrete or wooden tower designed to provide for passage of the pulp through the tower from the bottom to top or top to bottom in a wad without channelling. Conventional types of towers now in use for bleaching chemical pulps will very likely be suitable with some modification.

Pump S is designed to deliver the peroxide treated stock from mixer F into the bottom or top of tower K. With a properly designed centrifugal pump, mixer F may be omitted, provided adequate mixing is obtained in the pump.

Operation of the Process

DEFINITION OF TERMS

Quantities of groundwood are expressed on the basis of moisture-free pulp.

Percentages of chemicals used in the bleaching process refer to pounds of chemicals per 100 pounds of moisture-free pulp, e.g., 2% sodium peroxide means 2 pounds of sodium peroxide per 100 pounds of moisture-free pulp.

Brightnesses are expressed in terms of G. E. units.

TRIPLE BLEACHING TANK SYSTEM

The following procedure suggested for operating the bleaching process is based on bleaching with 2% sodium peroxide at a pulp consistency of 5%, a pulp temperature of 90°F., and a bleaching rate of 1 ton of pulp per hour.

Preparation of the Bleaching Solution. Run 2,000 gallons of clean, cold water into the dissolving tank A and add 1,000 pounds of sodium silicate to the water with stirring. At a slow rate add 400 pounds of sodium peroxide to the above solution with vigorous agitation. Add 340 pounds of 66° Bé, sulphuric acid, dilute to 2,500 gallons, continue agitation for about 10 minutes and pump the bleaching solution to supply tank C.

The amounts of chemicals used in the preparation of the bleaching solution must be changed (a) if the consistency is higher or lower than 5%, (b) if more or less than 250 gallons of the bleaching solution per ton of pulp is used in the bleaching operation, (c) if the composition of the silicate differs from the specifications given in a preceding section, or (d) if the pH of the pulp or of the mill water is abnormally high or low.

Bleaching Treatment. Through the constant level tank D and flowmeter E, feed the bleaching solution into mixer F at the rate of 250 gallons per hour. At the same time feed pulp from decker chest G through consistency regulator I and pulp meter J into mixer F at a rate of 1 ton per hour; proper proportioning of pulp and bleaching solution is essential; mixing of pulp and bleaching solution must be rapid and thorough.

Bleaching tanks K_1, K_2 and K_3 are charged in rotation with the peroxide-treated pulp from mixer F, e.g., while K_1 is being filled, the charge in K_2 is being bleached and the charge from K_3 is being delivered to mixer P. For continuous operation the time cycle is 6 hours in each tank.

Neutralizing and Reducing Treatment. Sulphite cooking acid from tank L is fed through filter M, constant level tank N and flowmeter O into mixer P. The rate of flow of cooking acid is adjusted to produce the desired pH (7 to 5) in the stock off the mixer. In regulator Q water is added to dilute the pulp to the desired consistency for the beaters. Beater chest R should be agitated to maintain a uniform consistency in the stock delivered to the beaters.

SINGLE BLEACHING TOWER SYSTEM

Operation of this system is similar to that described for the triple bleaching tank system. The bleaching tower K should be designed so the peroxide-treated pulp will pass from mixer F through tower K in a continuous wad without channelling.

Bleaching towers now in extensive use for bleaching chemical pulps can very likely be used for this operation with some modification.

If pump S is designed to provide adequate mixing of the pulp with the bleaching solution, mixer F is not required.

Control Tests

SODIUM PEROXIDE IN THE BLEACHING SOLUTION

Pipet a 10 ml. sample of the bleaching solution into a wide-mouth Erlenmeyer flask. Acidify with 10 to 20 ml. of 20% sulphuric acid. Titrate with 0.297 *N* $KMnO_4$ to a faint pink end point.

1 ml. 0.297 *N* $KMnO_4$ used = 1 pound sodium peroxide per 100 gallons water.

When 400 pounds sodium peroxide are used in preparing 2500 gallons of bleaching solution, 10 ml. of the solution will require 16.0 ml. of 0.297 *N* $KMnO_4$ to reach the end point. Under mill conditions this titration will vary somewhat, depending upon the accuracy of measuring the water in making up the solution; however, this titration should be in the range of 15 to 17 ml. When stored under normal conditions at 70 to 90°F. the solution should be stable; i.e., after 6 to 8 hours' storage, 10 ml. of the bleaching solution should still require a titration of 15 to 17 ml. of 0.297 *N* $KMnO_4$.

If this titration is lower than 15 ml., either immediately after making up the solution or after 6 to 8 hours' storage, it is advisable to use about 5 pounds Epsom salt per 2500 gallons of bleaching solution as stabilizer. The Epsom salt should be added to the water in the dissolving tank before any of the other chemicals are added. Epsom salt increases the dissolving efficiency as well as the stability of the peroxide solution during storage.

ALKALI IN THE BLEACHING SOLUTION

Pipet a 10 ml. sample of the bleaching solution into a clean, wide-mouth, 1000-ml. volumetric flask, dilute

to 1000 ml. and take a 100 ml. aliquot. Add 3 to 4 drops of phenol red indicator solution and titrate with 0.0406 *N* H_2SO_4 to a yellow (straw color) end point.

ml. $H_2SO_4 \times 1.355$ = pounds alkali calculated as NaOH, per 100 gallons of solution. For bleaching pulp at 5% consistency with 2% sodium peroxide this titration should be 7.6 ± 0.1 ml.

Peroxide in Treated Pulp

Place a sample of the groundwood slurry in a clean piece of cheesecloth and remove 100 ml. of the clear liquor into a clean beaker or flask by squeezing.

Pipet a 50 ml. sample of this filtrate into a wide-mouth Erlenmeyer flask. Acidify with 10 to 20 ml. of 20% H_2SO_4 (C.P.), add 2 to 3 drops of a 5% ammonium molybdate solution and titrate with a 0.297 *N* thiosulphate solution, using starch-iodide indicator for the end point.

$$\frac{\text{ml. thio}}{5} = \text{pounds sodium peroxide per 100 gallons of liquor.}$$

Alkali in Treated Pulp

Take a 10 ml. sample of liquor filtered from the groundwood slurry and add 3 or 4 drops of phenol red indicator solution. Titrate with 0.0406 *N* H_2SO_4 to a yellow (straw color) end point.

ml. $H_2SO_4 \times 0.1355$ = pounds alkali calculated as NaOH, per 100 gallons of liquor from the pulp.

Peroxide in the Pulp After Addition of Sulphite Cooking Acid

Remove a representative sample of the pulp slurry after the reducing agent has been uniformly mixed with the bleached groundwood. Place the sample in a small beaker and acidify with 20% H_2SO_4. Add approximately 0.5 ml. of a *freshly prepared* 10% KI solution and a few drops of a *fresh* starch solution. If the sample turns blue or black rapidly the slurry contains residual peroxide and additional reducing agent should be added. If after 3 to 5 minutes the sample remains colorless or turns yellow or light brown, instead of blue or black, the sample is free of residual peroxide.

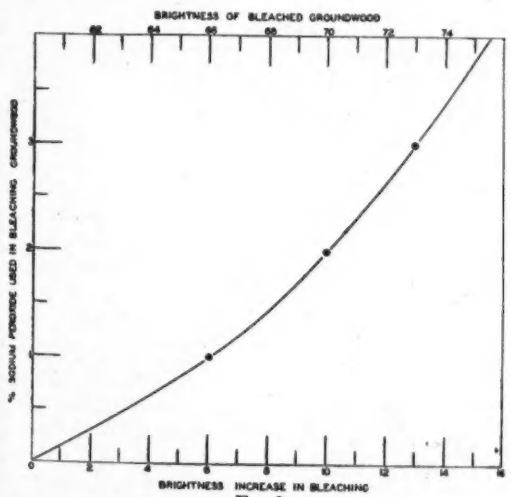

Fig. 3

Brightness Increases Obtained in Bleaching Groundwood with Increasing Percentages of Sodium Peroxide

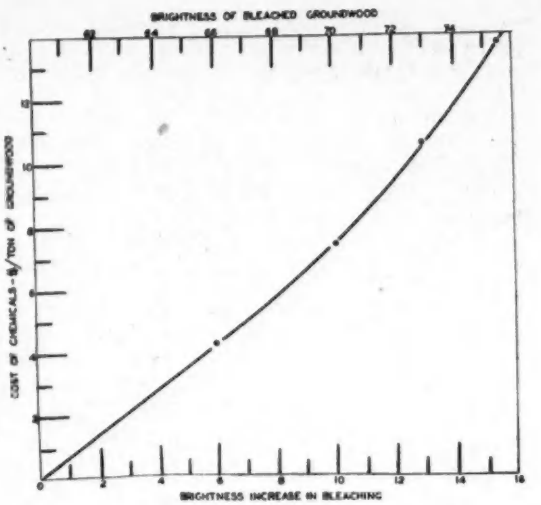

Fig. 4

Cost of Chemicals for Bleaching Groundwood to Different Brightnesses

Determining the pH of Pulp Slurries

The pH of the peroxide treated pulp decreases gradually and therefore the pH determinations should be made not later than 5 minutes after the sample is taken. For best results a pH meter based on the glass electrode is preferred. The electrode may be placed directly in the slurry and after adjusting for temperature the pH can be read directly.

Colorimetric pH solutions and standards may be used. However, with the colorimetric method of pH determination it is necessary to remove the groundwood by filtering rapidly through cheesecloth before checking the pH in the usual manner. If the solution is fairly clear and the pH reading is near the center of the range for that indicator, the result is reliable. If, however, the pH is near the end of the range for that indicator, the pH reading is open to question.

Preparation of Handsheets

In the preparation of handsheets for brightness determinations the standard TAPPI method was followed. The data presented by Koon and Niemeyer *(9)* on the weight of pulp used per handsheet, pH of the pulp, quality of water used in preparing handsheets, and moisture content of the handsheets have been very helpful in the technique of handsheet preparation. Wide variations in handsheet brightness have been encountered when these important variables were not given due consideration.

Yields

Quantitative laboratory studies on the recovery of stock in the bleaching process show little or no weight loss, i.e., less than 1%. Yields in mill operations have not been determined with a high degree of accuracy; however, checks on plant inventories have indicated yields comparable to those obtained in the laboratory.

Costs

The cost estimates shown graphically in Figs. 4, 5, and 6 should be considered as approximations only; they are based on laboratory data, confirmed to some degree by experimental plant runs and in a

limited way by mill operations. The figures are believed to be in the right order of magnitude and the trends shown in the curves are probably in the right direction.

Figure 3 shows the relationship between the percentage of sodium peroxide used in the bleaching treatment, the brightness of the bleached pulp, and the brightness increase obtained in the bleaching treatment.

Figure 4 shows the cost of chemicals per ton of pulp for bleaching groundwood to different brightness levels.

Figure 5 shows the cost of chemicals per point increase in pulp brightness when the pulp is bleached to different brightness levels.

Figure 6 was derived by combining the factor of color stability over the paper machine with the brightness gained in bleaching and then plotting this cumulative effect against the cost of chemicals per ton of paper. A theoretical value for the brightness of a paper may be calculated from the brightnesses of the components of the paper furnish. When unbleached groundwood is used in a paper furnish, the brightness of the paper from the machine is normally 2 to 3 points lower than the brightness calculated from the brightnesses of the individual components of the furnish. However, when mechanical pulps bleached with sodium peroxide are used in the furnish, the brightness of the paper from the machine normally equals the brightness calculated from the brightnesses of the components of the furnish. This factor of color stability over the paper machine is equivalent to bleaching the groundwood content of the paper an additional 4 to 6 points, assuming a typical furnish containing 50% groundwood. It is obvious that the values shown in Fig. 6 will vary with the percentage of bleached groundwood in the furnish.

Consideration of Variables in the Bleaching Process

Consideration is being given to the variables which may have a bearing on the bleaching results. The information developed on the importance of these viariables is still meager in some instances; considerable progress has been made in the study of other variables. From the work so far it has become evident that in some instances the variables are interdependent; i.e., a change in one variable necessitates a change in one or more other variables.

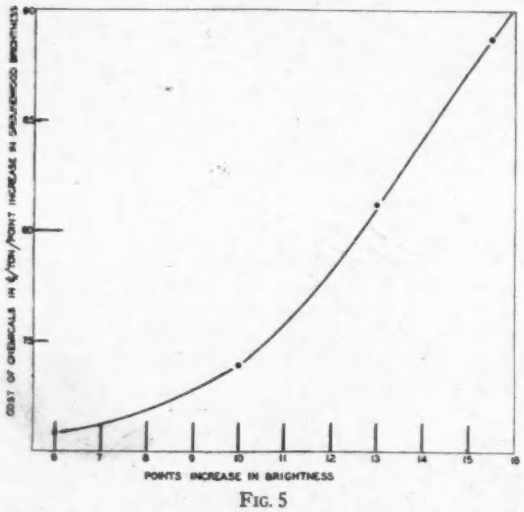

FIG. 5
Cost of Chemicals per Point Increase in Brightness for Bleaching Groundwood to Different Brightnesses

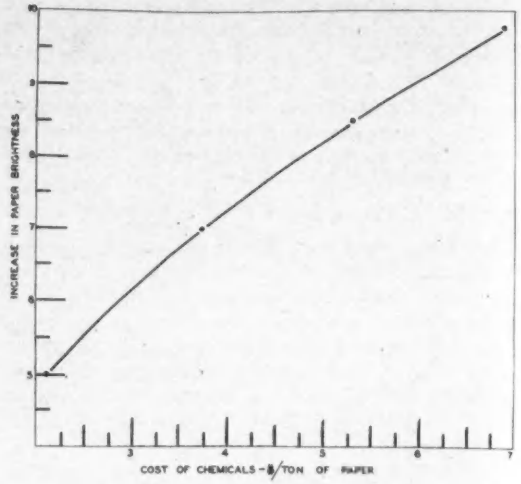

FIG. 6
Cost of Chemicals for Bleaching the Groundwood Used in Producing a Paper Containing 50% Groundwood, 40% Sulphite, and 10% Clay

The following variables are under consideration; subject to further confirmation the following trends are indicated:

Species of Wood Used in Grinding

Bleachability of different species of woods probably ranges in the following order: poplar, spruce, balsam, hemlock, and jack pine. There are some indications that a relationship may exist between the pitch content of the wood and its reaction to sodium peroxide bleaching.

Source of the Wood

Wood of the same species but grown in different localities has shown some variations in bleaching results; e.g., somewhat higher brightnesses have been obtained with Canadian spruce than with New England spruce when bleached under the same conditions.

Aging of the Wood Before Grinding

Bleaching results obtained in a comparison of pulps prepared from freshly cut wood and from the same type of wood after aging are not conclusive. Other important variables may have entered into these experiments to obscure the results.

Fineness of Grinding

No marked differences in bleaching results have been observed with pulps ground to different degrees of fineness. It is possible that finely ground pulp will bleach in a shorter time than coarsely ground pulp but this conclusion is not definite.

Aging of the Pulp Before Bleaching

In general, the greatest brightness increases are obtained when the pulp is bleached immediately after grinding. However, good bleaching results have been obtained with pulps stored for 6 months and longer.

Pulp Consistency

Consistency appears to be an important factor in the bleaching operation. In the consistency range of 3.0 to 7.0% the brightnesses obtained in the peroxide

bleaching process are higher at the higher consistency. Consideration is being given to the effect of still higher consistencies on the brightnesses obtained in bleaching. The bleaching time decreases with increases in consistency. At a bleaching temperature of 90°F. the following trend is indicated: 8 hours at 3.5% consistency, 6 hours at 5.0% consistency and 1 hour at 15% consistency.

A study of heat balances in the groundwood system shows that the temperature at which the pulp is delivered to the bleaching process increases with consistency. If ordinary measures are taken to prevent heat losses, the pulp temperature will approach 90°F. or higher most of the time when the consistency is maintained at 5% or higher. Lower temperatures may be encountered in cold weather during the start-up period or when the pulp is pumped through exposed lines over long distances out of doors. In that case the pulp or the white water should be heated with steam to raise the pulp temperature to about 90°F.

Bleaching at high consistencies has interesting possibilities also from the standpoint of decreasing the size of the bleaching equipment. A study of the density of groundwood (pounds per cubic foot) at different consistencies (0 to 50%) in towers of different heights is in progress. The trend of the data indicates practically a straight line relationship between density and consistency at the lower consistencies. This straight line relationship between the density and consistency probably does not continue at higher consistencies, i.e., when the interstices between the fibers are no longer filled with water. The packing effect on bulk density in towers of different heights also becomes a more important factor at these higher consistencies.

The economic factors in connection with bleaching at different consistencies may be summarized briefly as follows: Bleaching at higher consistencies requires more dewatering equipment, involves higher costs for dewatering, and mixing the bleach liquor with the pulp becomes more difficult. The factors favoring higher consistencies are a smaller bleaching tower (because of the higher bulk density of the pulp and the shorter bleaching period), possibly a higher brightness in the bleached pulp, and use of little or no steam to maintain the desired temperature.

Quality of Water

Water of good quality is an important factor in the production and bleaching of mechanical pulps and also in the conversion of the pulps into papers. Good water is a particularly important factor in the production of bright papers. Colored or color-producing impurities, such as the highly colored iron compounds, cause substantial drops in pulp and paper brightness. Decreases of 1 to 9 points in brightness have been observed under adverse water conditions. This subject is covered more fully by Miller *(10)* in a recent report of the Water Committe of TAPPI.

Many of the heavy metals, particularly iron, copper, and manganese have a catalytic effect on the decomposition of peroxide. These metals, normally present in pulp wood and in mill waters, may be in an active form or they may be chemically combined with other constituents of the wood or water in an inactive form. The traces of catalytic metals in the pulp wood are comparatively inactive; they are probably tied up as undissociated complexes with organic compounds in the wood; also, their catalytic activity may be inhibited by the stabilizing compounds of magnesium and calcium present in the pulp wood. The catalytic metals in the mill waters are likely to be in an active form and are more apt to have an adverse effect on the bleaching results unless steps are taken to deactivate them. Deactivation of these metal catalysts may be accomplished by the addition of magnesium sulphate to the bleaching solution, to the pulp or to both.

Bleaching Conditions

Proper proportioning of the chemicals in the preparation of the bleaching solution, as well as proper proportioning of the bleach liquor with the pulp in the bleaching treatment, have an important bearing on the bleaching results.

Temperature has a marked effect, not only on the rate of bleaching but also on the brightnesses obtained in bleaching. The practicability of bleaching in a shorter time at temperatures higher than 90°F. is being explored.

Reducing and Neutralizing Treatment

Preliminary results obtained in a study of the neutralizing and reducing treatment in the final stage of the bleaching process, indicate that with good mixing the reaction is completed in 1 to 2 hours, though there have been instances where a longer storage time resulted in a somewhat higher brightness. When sufficient sulphite cooking acid is added to the bleached pulp to lower the pH to the desired value there is enough cooking acid present to complete the required reducing action.

Summary

Research and development work on the sodium peroxide process for bleaching mechanical pulps is proceeding with favorable trends. A description of the process, in its present stage of development, is given in this status report. The bleached pulp retains most of the desirable characteristics of unbleached groundwood and some valuable new properties are developed in the bleaching treatment. Paper mill operations show that the bleached pulp can be used with technical and economic advantages in the manufacture of a wide range of papers.

The raw material used in the production of sodium peroxide is metallic sodium. This metal is also required for the production of highly strategic war materials, including tetra ethyl lead, sulfa drugs, synthetic rubbers, and salts for steel treating and metal plating. Also, sodium peroxide itself is filling important war needs. The present outlook on the availability of sodium peroxide for pulp bleaching is not favorable and is not expected to improve for the duration. Distribution of this chemical is in the hands of the War Production Board and for the immediate future sodium peroxide will most likely be available only for highly critical war uses. Installation of equipment for immediate operation of the sodium peroxide bleaching process is now not timely. However, this may be an opportune time for considering post war applications of sodium peroxide bleached mechanical pulps in paper manufacture.

Acknowledgement

We wish to express our sincere thanks to the many technical men, engineers, equipment specialists, plant operators, mill managers and executives in the pulp

and paper industry who have taken an active part, first, in carrying the sodium peroxide process for bleaching mechanical pulps to its present stage of development and, second, in developing the technique for utilizing the bleached pulp in the manufacture of a wide range of papers. In this acknowledgment we wish to express our appreciation also to the men in the printing trade and in the publishing industry who have given valuable assistance in developing the improved printing characteristics in these new types of papers.

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Knockdown Method for "Bliss" Type Cases to Permit Salvage and Reuse

By T. J. Nelson[1]

The current interest in salvaging all possible fiber shipping cases for reuse as secondhand containers has been made the subject of a specific program undertaken by a governmental agency (the Containers Division of the War Production Board). In the ordinary situation this program involves careful opening of the case flaps on both top and bottom, after which the case body can be flattened and placed in a pile for bundling and delivery to the next user.

This procedure applies to the common forms of either regular slotted or special slotted containers. It is not, however, suited for the shipping case commonly called a "Bliss" box. The latter case is stitched in a permanent setup form, with an opening of some kind on the top only. Such a style of case is ordinarily selected for one of two reasons: either to utilize smaller blanks in the assembly (three small instead of one large), or to secure added corner rigidity claimed for this style of construction.

Under circumstances where the reuse of such "Bliss" type cases is made impossible because they cannot be flattened by ordinary means, a technique of cutting has been used to obtain somewhat the same results. This consists essentially of cutting the solid bottom panel involved, in a manner which forms four flaplike parts. Each part remains hinged to its corresponding side, as indicated in the accompanying sketch to serve the dual purpose of permitting later reclosure and of keeping the four sidewalls from bowing out when the case is refilled for reuse service.

Such a case would, when refilled, be taped lengthwise and girthwise, or in any other manner applicable to the commodity and service involved. If suitable rectangular blanks are at hand, these could be stitched to the two small (pointed) end flaps, to form a normal rectangular flap. This would provide added case rigidity and closure security.

As indicated in the sketch (Fig. 1) five cuts are made to form the four flaps. These cuts are arranged and positioned as indicated, and are made in the sequence indicated. The sketch shows the cutting as being done on the bottom of the case. Actually, in subsequent reuse it may be desirable to consider these cut flaps as being the top of the case. Thus the obvious deficiencies of the improvised flaps will be minimized.

The actual operation of cutting the four flaps can be performed simply by using a sharp knife drawn along the approximate lines indicated in the sketch. If many cases of the same size were to be cut, use of a plywood guide, with suitable side members to permit nesting on the case, could be considered.

[1] California & Hawaiian Sugar Refining Corp., San Francisco, Cal.

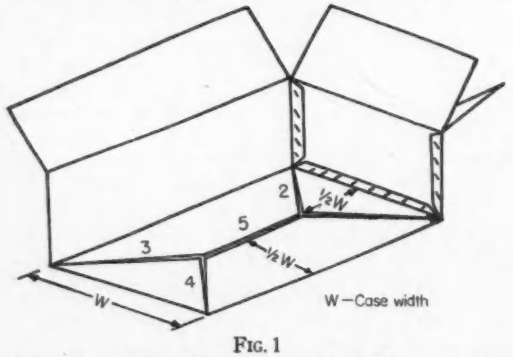


FIG. 1

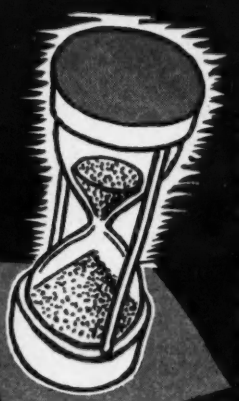
Cutting Flaps in Bottom Face of "Bliss" Type Boxes to Permit Knockdown, Reassembly and Reuse

Vancouver as Pulp Center

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 15, 1944—A meeting of the British Columbia Forest Service was held recently at Nanaimo, says a report to the Department of Commerce. The main topic of discussion was the possibility of developing the west coast of Vancouver Island as a pulp center. It was noted that the stands of hemlock, balsam, and spruce are more extensive on the western shore than in the eastern areas of the island. Since all three are being used in increasing amounts for both pulp and plastics, it is felt that this abundance of raw material alone should warrant the establishment of a large pulp manufacturing industry on the west coast of the island.

12 WAYS TO ADD LIFE TO YOUR FELTS



To help you get more wear from your felts and thereby save wool, Orr presents this check list for your help and information.

1) Do you check suction box covers for splinters and abrasives and dress them frequently?
2) Do you examine rolls, boxes, and journals for surface grease and remove at once if found, before attempting to place felt on machine?
3) Have you recently checked felt rolls for balance? For free turning?
4) Is your felt cleaner, particularly those parts touching the felt, in excellent condition?
5) Are you sure that your felt stretchers are operating freely?
6) Do you know if the crowning of your press rolls is correct? Are these rolls in alignment?
7) Are you sure your whipper arms are operating evenly and with correct amount of whip?
8) Are holes in shower pipes open and applying correct spray?
9) Do you check water temperature and insist that correct temperatures be maintained?
10) Have you checked for presence of iron hydroxide in the water, the chemical that makes felts stiff and boardy?
11) Are deckles on board machines smooth and free from rough edges?
12) Have Orr Sales Engineers told you the latest method of cleaning, drying, and storing felts?

Orr Felt representatives are eager to help you. Call for them when reordering felts or when needing assistance.

ORR FELTS THE ORR FELT AND BLANKET CO., PIQUA, OHIO

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Appleton Wire Works, Inc.

APPLETON, WISCONSIN

New York Paper and Pulp Market Review

Heavy Paper Demand Centers Largely In Kraft Wrapping and In Paper Board Items—Pulp Supply Situation Improved But Government Needs May Limit Civilian Use To 27 Percent of the Output.

Office of the PAPER TRADE JOURNAL,
Wednesday, March 15, 1944.

Kraft wrapping and all grades of paper board are currently reported in limited supply in New York and in other leading wholesale markets, by most of many reports received from manufacturers' representatives, jobbers, and general paper merchants this week.

Although prospects for the wood pulp supply are improving, paper and paper products for civilian consumption may be limited to 27.9% of total production, while defense plants and Government agencies, according to preliminary reports of the Department of Commerce, will require an estimated 38.6%, and an additional 33.5% to maintain the war economy..

The index for sales of paper, states the Department of Commerce, declined from 177.9 in December 1943, to 172.6 in January 1944; the index for inventories declined from 93.6 to 91.8, compared with an average sales index of 176.8 for 1943.

The index of general business activity for the week ended March 4, declined to 144.8, from 146.7 for the previous week, compared with 135.5 for the corresponding week last year. The index of paper board production was 146.9, compared with 139.6 for the previous week and with 147.9 for the corresponding week last year.

Paper production for the week ended March 4 was estimated at 88.7%, compared with 89.7% for 1943, with 102.7% for 1942, with 88.6% for 1941, and with 83.4% for the corresponding week for 1940.

Paper board production for the week ended March 4 was 95.0%, compared with 93.0% for 1943, with 101.0% for 1942, with 80.0% for 1941, and with 69.0% for the corresponding week for 1940.

Wood Pulp

Wood pulp requirements for the Government, defense plants and for export, is estimated by the Department of Commerce to total 34.2% of output this year, for the manufacture of essential paper and paper board; unbleached sulphate, 44.2%, and bleached sulphite pulp, 36.5%.

Rags

Demand for cotton cuttings is active at this date. Prices are very firm at ceiling quotations and the market is reported as strong.

Mill buying is active in the old cotton rag market. Ceiling prices are firmly maintained in the roofing grades.

Old Rope and Bagging

Mill demand continues strong for old No. 1 Manila rope. Prices continue firm at ceiling levels.

Little improvement in activity in the scrap bagging market has been reported this week. Demand is slow and the market is quiet. Prices continue nominal.

Old Waste Paper

Mill requirements for paper stock are urgent and demand is strong. Present stocks, states the Department of Commerce, represent only a few weeks' supply. To reach the goal of 8,000,000 tons for 1944, 66% of the available recoverable domestic supply must be reclaimed, compared with 45% in 1943, and with 42% in 1942. The goal can only be reached by great effort on the part of all Government agencies, public and private organizations and by individual citizens, the report declares.

Twine

No important change in the twin market has been reported this week. Demand is active for all available grades. Prices are firm.

Patent Law

Patent Law for Chemists, Engineers and Students by Chester H. Biesterfeld is the title of a 225 page book recently issued by John Wiley & Sons. Those who do not possess a professional training in law, but who have frequent occasion to acquire a detailed understanding of some proposition of the patent law in connection with their work, will find it helpful to have within convenient reach an explanation of the subject of inquiry together with pertinent quotations from the decisions. Since the courts have been holding invalid about 80 to 90 per cent of the patents coming before them in recent years this is important. Basic patents and important patents covering new technical results will still be sustained but the lot of the mere improvement patent has grown hard. Some of the subjects covered include novelty, priority of invention, abandonment, patentability of uses, disclaimers, infringement, licenses, trade secrets, patent litigation, searches and damages.

Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd street, New York City, at $2.75 per copy.

Name Stationery and Tablet Committee

The Office of Industry Advisory Committees of the WPB has announced the formation of the Paper Stationery and Tablet Industry Advisory Committee. Leonard F. Smith of the WPB Paper Division has been appointed government presiding officer. Members of the committee are: Ronald Astley, Highland Manufacturing Company, Holyoke, Mass.; G. L. Clayson, Eaton Paper Corporation, Pittsfield, Mass.; H. C. Dutton, White & Wyckoff Manufacturing Company, Holyoke, Mass.; R. J. Flagg, Eastern Tablet Corporation, Albany, N. Y.; Harry Garey, Montag Brothers, Inc., Atlanta, Ga.; D. A. Heffner, Central Tablet Manufacturing Company, Columbus, Ohio; John P. Leindecker, Western Tablet and Stationery Corporation, Dayton, Ohio; Lloyd Riches, Western Paper Converting Company, Salem, Ore.; J. T. Roach, Southern Central Company, Memphis, Tenn.; E. G. Spatz, Roaring Spring Blank Book Company, New York, N. Y.; and R. O. Spencer, Osborn Paper Company, Marion, Ind.

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CANADIAN VEGETABLE PARCHMENT CO., LTD.
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IN THE 18th CENTURY THERE WAS PAPER SHORTAGE, TOO!

BUT FEW PEOPLE WERE AWARE OF IT!

THE making of paper was an art then—and only the royal and wealthy could use paper, as it was made by hand, sheet by sheet. The art of paper making developed into an industry, until less than two centuries later tons of paper were produced faster than the early paper makers produced sheets.

From the very first felt layers were used by the early paper makers for removing the water from the sheets, by placing the sheets between the layers of felt and pressing out the water. In 1944 felts are just as important to the manufacture of paper. Since 1890 Appleton Felts have met all requirements of paper mill production, year after year—in 1944 the standard for paper mill felts.

Illustrations from the Bettman Archive.

APPLETON WOOLEN MILLS, APPLETON, WIS

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, March 15, 1944.

BLANC FIXE — Quotations on blanc fixe continue firm and unchanged. Demand is reported fair. The pulp is currently quoted at $40 per ton, in barrels, at works; the powder is quoted at $60 per ton, f.o.b. works.

BLEACHING POWDER—Current demand is heavy but supply is adequate. Quotations are unchanged. Prices on bleaching powder range at from $2.50 to $3.10 per 100 pounds, in drums, car lots, at works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 24 cents per pound; 2,000 pounds, 24½ cents per pound; less than 2,000 pounds, 24¾ cents per pound, f.o.b. shipping point. Imported, 9¼ cents per pound, f.o.b. source.

CAUSTIC SODA—Demand continues heavy. Market a little less tight. Prices continue unchanged. Solid caustic soda is quoted at $2.30 per 100 pounds; flake and ground is quoted at $2.70 per 100 pounds; all in drums, car lots, at works.

CHINA CLAY—Quotations on china clay are unchanged. Current demand is reported fair. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton, at mine. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Demand and production reported well balanced. Quotations are unchanged. Chlorine is currently quoted at $1.75 per 100 pounds, in single unit tank cars, f.o.b. works.

ROSIN—Prices on most grades are higher for the current week. "G" gum rosin is quoted at $4.70 per 100 pounds, in barrels, Savannah. "FF" wood rosin is quoted at $4.65 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is currently quoted at $4.97 per 100 pounds, f.o.b. works.

SALT CAKE—Prices on salt cake are reported unchanged for the current week. Demand is reported moderate. Domestic salt cake is quoted at $15 per ton, in bulk. Chrome salt cake is quoted at $16 per ton. All prices in car lots, f.o.b. shipping point.

SODA ASH—Heavy demand continues for domestic requirements and market is still tight. Quotations continue unchanged. Current prices, car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Small supply of cash corn continues to create a tight market situation in corn products. Quotations are unchanged. The pearl grade is quoted at $3.72 per 100 pounds; powdered starch at $3.83 per 100 pounds; all prices in bags, car lots, f.o.b. Chicago.

SULPHATE OF ALUMINA—Demand reported good. Quotations continue unchanged. The commercial grades are quoted at from $1.15 to $1.25 per 100 pounds, in bags, car lots, f.o.b. works. The iron free is quoted at $2.35 per 100 pounds, in bags, at works.

SULPHUR—Quotations on sulphur continue to conform to prevailing market prices. Annual contracts are quoted at $16 per long ton, f.o.b. mines; the price at Gulf Ports is $17.50 per long ton.

TALC—Prices on talc continue unchanged. Demand moderate. Domestic grades are currently quoted at from $16 to $21 per ton, at mines; Canadian at $24 per ton. All prices in car lots.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

News, per ton—

Roll, contract	*$58.00	@	—
Sheets	64.00	"	—

* OPA Maximum Price.

Kraft—per cwt.—Carload Quantities Zone A, f.o.b. Mill

Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard Bag	*4.375	"	—

* OPA Manufacturers' Prices.

Tissues—Per Ream—Carlots

White No. 1	1.12½	"	—
White No. 1 M. G.	1.10	"	—
White No. 1½	1.00	"	—
White No. 2	.90	"	—
Anti-Tarnish M.F.	1.20	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—

Toilet—1 M. Sheets—Per Case

Unbleached	4.25	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—

Paper Towels, Per Case—

Unbleached, Jr.	2.20	"	—
Bleached, Jr.	3.20	"	—

Manila—per cwt.—C. l. f. a.

No. 1 Jute	11.25	@	—
No. 1 Manila Wrapping, 35 lb.	6.00	"	6.25
No. 2 Manila Wrapping, 35 lb.	5.75	"	6.00

Boards, per ton—

News	*48.00	@	—
Chip	*48.00	"	—
Sgl. Mla. Ll. Chip	*60.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*63.00	"	—
Binders Boards	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
100% Rag Ext. No. 1	$39.10	@ $46.00	$40.25	@ $47.25
100% Rag	32.20	" 37.75	33.35	" 39.25
85% Rag	....	"	29.90	" 35.00
75% Rag	23.00	" 27.00	24.15	" 28.25
65% Rag	....	"	22.80	" 27.75
50% Rag	18.70	" 22.75	19.90	" 24.25
25% Rag	16.40	" 20.00	17.55	" 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds		Ledgers	
No. 1	$10.55	@ $12.75	$11.70	@ $14.25
No. 2	9.65	" 11.75	10.80	" 13.25
No. 3	9.20	" 11.25	10.35	" 12.50
No. 4	8.90	" 10.75	10.05	" 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper. Delivered in Zone 1:

No. 1 Glossy Coated	$13.65	@	$13.50
No. 2 Glossy Coated	12.40	"	14.00
No. 3 Glossy Coated	11.60	"	13.25
No. 4 Glossy Coated	11.15	"	12.75
No. 1 Antique (watermarked)	10.25	"	11.75
No. 2 Offset	9.60	"	11.00
A Grade E. F.	9.35	"	10.75
A Grade S. & S. C.	9.60	"	11.00
B Grade E. F.	8.85	"	10.25
B Grade S. & S. C.	9.10	"	10.50
C Grade E. F.	8.55	"	9.75
C Grade S. & S. C.	8.80	"	10.00
D Grade E. F.	8.25	"	9.50
D Grade S. & S. C.	8.50	"	9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight Not Exceeding OPA Allowances.

Bl. Softwood Sulphite	$86.00
Unbl. Softwood Sulphite	74.00
Bl. Hardwood Sulphite	83.50
Unbl. Hardwood Sulphite	71.50
Bl. Mitscherlich	81.0
Unbl. Mitscherlich	72.00 @ 82.00
N. Bleached Sulphate	86.00
S. Bleached Sulphate	79.00
N. Semi-Bleached Sulphate	82.0
S. Semi-Bleached Sulphate	75.0
N. Unbl. Sulphate	73.00
S. Unbl. Sulphate	63.50
Bl. Soda	72.00
Unbl. Soda	68.00
Groundwood	50.00

Transportation Allowances Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50%-80% Air Dry Weight
Northeast	$11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices

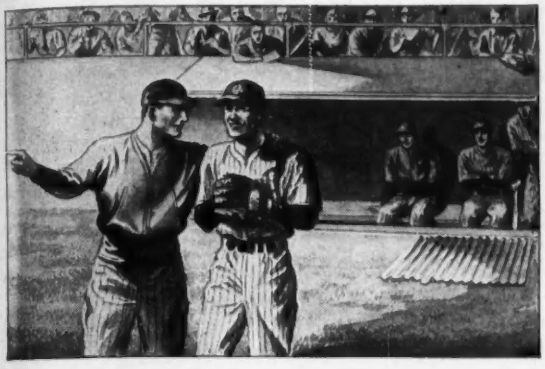
Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.50	@	7.25*
Silesias No. 1	—	"	5.75*
New Unbleached	6.75	"	7.50*
Blue Overall	—	"	5.50*
Fancy	—	"	3.50*
Washables	—	"	3.00*
Bleached Khaki Cuttings	—	"	4.25*
Unbleached Khaki Cuttings	—	"	3.50*

* OPA Maximum Prices.



SECOND LINE OF DEFENSE

THE WINNING TEAM in any sport is invariably the one that is *deep in reserves* . . . In commerce and industry, the resourceful manufacturer is likewise the one with *a second line of defense*.

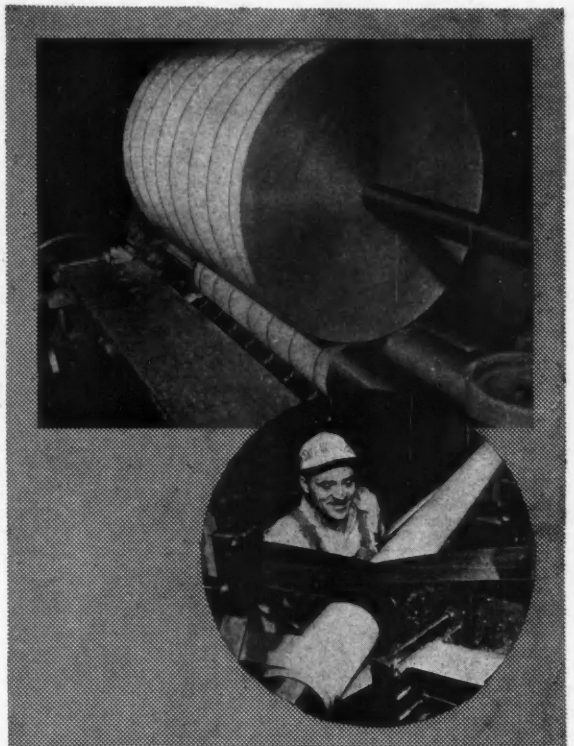
For your present adhesives problems—in spite of wartime restrictions—Arabol offers just such a second line of defense. During 58 years of pioneering, more than 10,000 adhesives formulae have been perfected in the Arabol Laboratories. Our aim has always been to deliver the one best adhesive for each industrial requirement.

Today—with the frequent need to use "duration" materials—Arabol's long experience still provides a practical solution to each of your adhesives requirements. As a matter of fact, we know that many of our new formulae will continue in active demand, after the war.

Write to Dept. **57** for *proved* solutions to present-day adhesives problems. Describe your conditions fully.

THE ARABOL MANUFACTURING CO.
PIONEERING SINCE 1885
Executive Offices:
110 East 42nd St., New York 17, N. Y.
Offices and Factories:
BROOKLYN · CHICAGO · SAN FRANCISCO
Branches in Principal Cities

Adhesives? . . ARABOL!



Fibre Paint Cans Save Tons of Steel Daily

The Sherwin-Williams Co., well-known paint manufacturers, use Kraft wrapping paper and non-critical materials to manufacture unbreakable, leak-proof, fibre paint cans, following a process perfected by their own engineers.

The first step involves slitting rolls of Kraft wrapping paper into 4" wide strips, and winding these strips into compact, uniformly-wound rolls. This is done at high speed, 1,000 feet per minute—with CAMACHINE 10-11, illustrated.

The 4" wide rolls of Kraft converted on the CAMACHINE, are then transferred to a spiral tube-winding machine, shown in the illustration, producing a continuous tube. The tube is sawed off into yard lengths, for convenient handling, on a gang cutter, which cuts, for example, four tubes from the 36" length. Top and bottom rims are crimped on the tubes. Each can is then tested for leaks on a special machine and the job is done.

This is just one more instance of the way CAMACHINES help harassed production engineers save critical materials for the war effort. Further details on CAMACHINE 10-11 are yours for the asking.

CAMERON MACHINE CO.,
61 POPLAR STREET BROOKLYN 2, N. Y.

MIDWEST OFFICE: HARRIS TRUST BLDG.,
111 W. MONROE ST., CHICAGO 3, ILLINOIS

CAMACHINE

Old Rags

White, No. 1—			
Repacked	*3.80	"	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Third and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.80	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

OPA Maximum Prices.

Foreign Rags

All Prices nominal

New Rags

New Dark Cuttings	2.25	●	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.25	●	4.35
Wool Tares, light	4.25	"	4.50
Wool Tares heavy	4.50	"	5.00
Bright Bagging	4.50	"	4.85
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	5.50	"	—
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	2.00	"	—

* OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	●	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
Mixed Books	.85	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Mixed Ledger, colored	1.87½	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.85	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	.85	"	—

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	●	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17¼	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	25	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila	—	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill.)

Shirt Cuttings—	
New White No. 1	.07¼
New White No. 2	.05¾
Light Silesias	.05¾
Black Silesias, soft	.03¾
New Unbleached	.07½
Washable Prints	.04¼
Washable No. 1	.03
Blue Overall	.05½
Cottons—According to grades—	
Washable shredding	.01¾
Fancy Percales	.04½
New Black Soft	.03¼
Khaki Cuttings—	
Unbleachable Cotton Cuttings	.03½
Bleachable Cotton Cuttings	.04¼
Men's Corduroy	.03½
Ladies' Corduroy	.03
Cottonades	.03¼

Domestic Rags (Old)

White No. 1 — Repacked	3.80	"	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
White No. 2 — Repacked	2.90	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	"	3.50
No. 1 Clean bright—			
Sisal Strings	.04		
No. 2 Clean bright—			
Sisal Strings	.03		
Sisal Jute	.02½	"	.02¾
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	3.25	@	—
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	*4.25	"	—
Mixed Rope	2.00	"	—
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	5.25	"	—
Jute Cut Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.50	"	—
Wool Tares—			
Foreign	(nominal)		

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices

No. 1 Hard White Shavings, unruled	2.87½	●	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	3.25	@	—
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	*4.25	"	—
Mixed Rope	2.00	"	—
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	5.25	"	—
Jute Cut Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.50	"	—
Wool Tares—			
Foreign	(nominal)		
Domestic	4.25	"	—
Aust. Wool Pouches	3.75	"	4.00
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Roofing Bagging	1.35	"	—

* OPA Maximum Price.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	●	.04¾
Fancy Percales	.04¼	"	.05
New White No 1	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06½
Underwear Cutters, Bleached	.06¼	"	.06¾
Underwear Cutters, Unbleached	.05¼	"	.06
Silesias No. 1	.06	"	.06¼
New Black Silesias	.03	"	.03½
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¾	"	.03¾
New Canvas	.06¼	"	.06¾
B. V. D. Cuttings	.06¼	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	●	—
Miscellaneous	3.20	"	—
White No. 2—			
Miscellaneous	2.65	"	—
Twos and Blues, Repacked	2.20	"	—
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—
Miscellaneous	1.80	"	—
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—
No. 2	1.45	"	—
No. 3	1.35	"	—
No. 4	1.35	"	—
No. 5, Quality A	1.35	"	—
Quality B	1.20	"	—
Quality C	.95	"	—
Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

(F. o. b Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices.

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	1.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.17½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—
Misc.	2.15	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Ledger, colored	1.87½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Box Board Cuttings	.72½	"	—
Kraft Corrugated Cuttings	2.25	"	—
Old Corrugated Containers	1.15	"	—
Overissue News	.85	"	—
No. 1 News	1.00	"	—